

A review of the freshwater crabs of the genus *Hypolobocera* Ortmann, 1897 (Crustacea: Decapoda: Brachyura: Pseudothelphusidae), from Colombia

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Abstract.—A review of the species of *Hypolobocera* from Colombia is presented. A total of 18 species and four subspecies occur in this country. Diagnoses, illustrations, and a key for the identification of species and subspecies based on the morphology of the first male gonopod, are included. The geographical distribution of the genus, species and subspecies is updated based on new material. Two new species, *Hypolobocera murindensis* and *H. velezi*, are described and illustrated. Two more groups of *Hypolobocera* species, groups 7 and 8, are defined to accommodate *H. alata* Campos, and *H. andagoensis* (Pretzmann). One subspecies, *H. bouvieri rotundilobata*, is elevated to specific rank.

The genus *Hypolobocera* Ortmann, 1897, includes 34 species of freshwater crabs that can be found in Venezuela, Colombia, Ecuador, and Perú. This makes *Hypolobocera* the most widely distributed genus of all pseudothelphusid genera. In Colombia, *Hypolobocera* is now represented by 18 species and four subspecies. In reviewing the genus for Ecuador, Rodríguez & Sternberg (1998) listed 12 Ecuadorian species, three of which were new. Rodríguez (1982a) recorded three species for Perú, the southern distributional limit for the family Pseudothelphusidae. The systematics and biogeography of the genus have been reviewed by Rodríguez (1982a, 1994), Rodríguez & Sternberg (1998), and Prahl (1988).

The morphology of the first male gonopod, a basic characteristic for the diagnoses of the species, displays considerable interspecific variability in freshwater crabs. Rodríguez (1982a) divided the genus *Hypolobocera* into six groups based on morphological and biogeographical features. Accordingly, the Colombian *Hypolobocera* can be placed as follows: in group 1, *Hypolobocera beieri* Pretzmann, 1968, *H.*

martelathani (Pretzmann, 1965), and *H. noanamensis* Rodríguez, Campos & López, 2002; in group 2, *H. bouvieri* (Rathbun, 1898); in group 3, *H. steindachneri* Pretzmann, 1968; in group 4, *H. cajambrensis* Prahl, 1988, *H. chocoensis* Rodríguez, 1980, *H. dentata* Prahl, 1987, *H. emberarum* Campos & Rodríguez, 1995, *H. lloroensis* Campos, 1989, *H. malaguena*, Prahl, 1988, *H. rotundilobata* Rodríguez, 1994, and *H. velezi*, new species; and in group 5, *H. gorgonensis* Prahl, 1983, and *H. mutisi* Prahl, 1988; group 6, *H. andagoensis* (Pretzmann, 1965), and *H. murindensis*, new species. However, *H. alata* Campos, 1989, and *H. kamsarum* Campos & Rodríguez, 1995 can not be assigned to any of the groups proposed by Rodríguez (1982a) as the features of their gonopods do not match any of Rodríguez's groups. Thus, it is necessary to add two new groups in order to accommodate these latter two species. Group 7 is proposed for *H. alata*, and is characterized by having the lateral lobe of the first male gonopod with a strong triangular process; the apex is oval and bent caudocephalically, the cephalic border is

expanded into triangular projection which is folded downwards and has a rounded papilla on the tip. The known distribution of group 7 comprises the San Juan River basin on the Western Cordillera. Group 8 is proposed for *H. kamsarum*, and is distinguished by the lateral lobe of the first male gonopod which is small, transverse and displaced towards the cephalic side; the apex is oval with a rounded expansion distally, and the mesial border is projected proximally, forming a strong triangular mesial lobe. The distribution of group 8 comprises the eastern foothills of the southern Andes of Colombia.

The terminology for the male first gonopod is that of Smalley (1964), and Rodríguez (1982a, 1994). The measurements are reported in the order "cl × cb" (carapace length times carapace breadth). The material was collected by the author except where otherwise indicated, or in some cases by an unknown collector (uk). The material of the Museo de Biología Marina, Universidad del Valle, was reported by Prahl with numbers that apparently corresponded to his collection lot numbers (not museum catalogue numbers), followed by the abbreviation "ADT-CRBMUV" (=Agua Dulce y Terrestres Crustáceos, Biología Marina Universidad del Valle). However, Prahl's material examined that is still extant at the Museo de Biología Marina, Universidad del Valle, Cali now has only museum catalogue numbers. Prahl's collection numbers are included herein in parenthesis only for the material reported as such in his publications. Color nomenclature follows Smithe (1975). Two species, *Hypolobocera buenaventurensis* (Rathbun, 1905), and *H. steindachneri* Pretzmann, 1968, are not illustrated due to the lack of material.

The materials remain deposited in: Colección de Referencia, Museo de Historia Natural, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá (ICN-MHN); Museo de la Sociedad de Ciencias Naturales La Salle, Caracas (LS); Museo de La Salle, Bogotá (MLS); Museo

de Biología Marina, Universidad del Valle, Cali (CRBMUV); Instituto Venezolano de Investigaciones Científicas, Caracas (IVIC); National Museum of Natural History, Smithsonian Institution, Washington D.C. (USNM); Natural History Museum, London (BM); Museum of Natural History of Tulane University, New Orleans (TU); Field Museum of Natural History, Chicago (FMNH); and Musée de Strasbourg (SM).

Tribe Hypolobocerini Pretzmann, 1971
Hypolobocera Ortmann, 1897

Diagnosis.—First male gonopod with strong longitudinal caudal ridge. Lateral lobe well developed, sometimes reduced, varying according to species as triangular, rounded or subquadrate, and with or without crenulations over distal margin. Apex outline either rounded, oval, or elongated in distal view. Mesial lobe triangular, semicircular or reduced as strong fold. Third maxilliped with exognath 0.20–0.60 times length of ischium of endognath.

Type species.—*Potamia chilensis* H. Milne Edwards & Lucas, 1844.

Distribution.—Venezuela, Colombia, Ecuador and Perú.

Hypolobocera alata Campos, 1989
 Fig. 1A–F

Hypolobocera alata Campos, 1989:145, fig. 2a–g.

Hypolobocera alata.—Rodríguez, 1992: 183.

Material examined.—Colombia. Huila Department, Villavieja, La Batea stream, 400 m alt., 3 Apr 1982, leg. R. Restrepo, ♂ holotype, 13.1 × 20.2 mm, 1 ♀ paratype, 13.4 × 21.4 mm, ICN-MHN-CR 0853.—Risaralda Department, Pueblo Rico, Corregimiento Santa Cecilia, Amurropa stream, 490 m alt., 26 Sep 1991, leg. G.A., 2 ♂, 12.3 × 19.5 mm, 10.1 × 15.2 mm, ICN-MHN-CR 1309; Vereda La Granja, 700 m alt., 22 Oct 1991, 1 ♂, 12.1 × 19.6 mm, ICN-MHN-CR 1306.—Chocó Department,

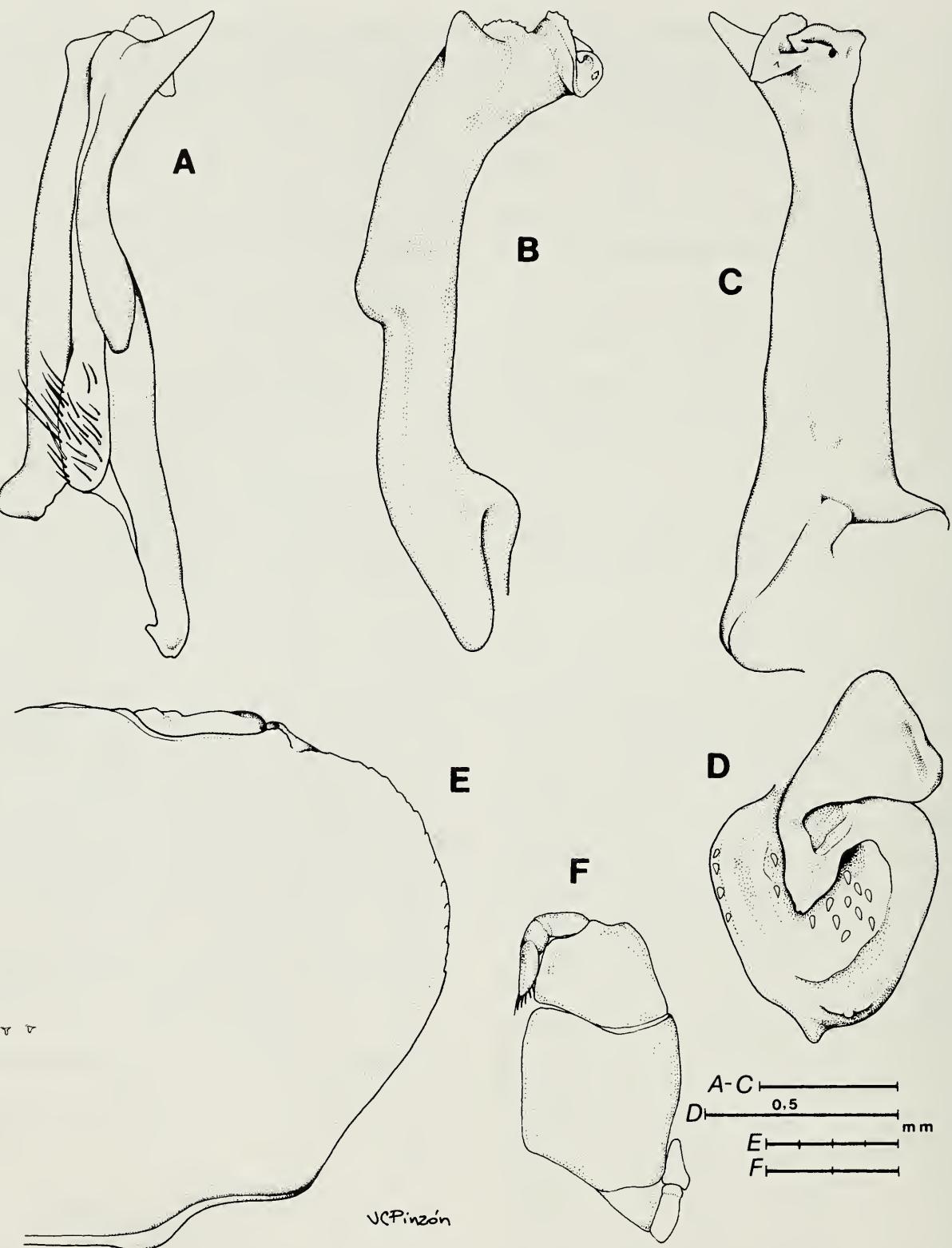


Fig. 1. *Hypolobocera alata* Campos, 1989, male, ICN-MHN-CR 1309: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, apex, distal view; E, right side of carapace, dorsal view; F, left third maxilliped, external view.

Tadó, Corregimiento Guarató, Guadralito stream, 500 m alt., 28 Sep 1991. leg. G. Andrade, 1 ♂, 12.1 × 19.4 mm, ICN-MHN-CR 1308.

Diagnosis.—First male gonopod narrow,

strongly bent caudocephalically, distal caudal margin with row of blunt teeth (Fig. 1B). Caudal ridge long, strong, straight; ending beyond lateral lobe. Lateral lobe with strong triangular process (Fig. 1A–C).

Apex bent caudocephalically, apex outline oval in distal view, lateral border raised, with 4 acute spines near caudal border; cephalic border expanded into triangular projection, folded downwards, with rounded papilla on tip; prominent rounded cephalic papilla and small papilla on top. Mesocaudal projection of spermatic channel terminating in slightly bifid papilla. Mesial lobe subtriangular (Fig. 1B–D). Third maxilliped with exognath approximately 0.30 times length of ischium (Fig. 1F).

Remarks.—The type locality of *Hypolobocera alata* is Villavieja, Huila, located on the Magdalena River valley. Subsequently, other specimens were collected in Pueblo Rico, Risaralda, Western Cordillera, upper reaches of the San Juan River, and in Tadó, Chocó, Pacific coastal plain, middle course of the San Juan River. The first male gonopods of these specimens is identical to that of the holotype. Thus, it appears that the type locality may have been misreported, and *Hypolobocera alata* is actually found in the vicinity of Pueblo Rico, Risaralda, and Tadó, Chocó in the San Juan River basin.

Hypolobocera andagoensis

(Pretzmann, 1965)

Fig. 2A–G

Strengeria (Strengeria) andagoensis Pretzmann, 1965:6.

Hypolobocera (Hypolobocera) andagoensis.—Pretzmann, 1971:17; 1972:51, figs. 170–172.

Hypolobocera andagoensis.—Rodríguez, 1982a:67, fig. 21c, e.—Prahl, 1988: 183.—Rodríguez, 1994:296, fig. 1a–c.

Material examined.—Colombia. Chocó Department. Andagoya, May 1957, leg. M. Latham, 1 ♂ holotype, 19.2 mm × 31.6 mm, USNM 106405.—No data, May 1957, leg. M. Latham, 13 ♂, 16.8 × 27.4 to 11.5 × 19.1 mm, 2 ♀, cl 20.8 × 34.9 mm, 17.5 × 28.8 mm, USNM 106407.—No data, May 1957, leg. M. Latham, 22 ♂, 12.5 × 30.2 to 8.9 × 15.2 mm, 25 ♀, 21.0 × 37.6

to 9.4 × 11.0 mm, USNM 106409.—Andagoya, Condoto and San Juan Rivers, leg. H. G. F. Spurrel, 1 ♀, 19.2 × 32.0 mm, BM 1915.11.1.1.—110 km N of Palestina, Do-cordó stream, affluent of San Juan River, 4°55'N, 76°55'W, 22 Jan 1971, leg. B. Malkin and P. Bouchard, 1 m, 20.6 × 32.0 mm, 2 ♀, cl 12.6 × 18.9 mm, 11.1 × 16.6 mm, FMNH 3676.

Diagnosis.—Chelae of male lacking tubercles on external base of mobile fingers and fixed fingers (Fig. 2G). First male gonopod with caudal ridge long, strong, slightly sinuous; almost reaching to apex (Fig. 2A). Lateral lobe prominent, subquadrate, narrower distally than proximally, external margin faintly crenulated; caudal surface partially excavated, (Fig. 2A, B). Apex outline oval in distal view, slightly expanded caudally; shallow notch on caudal border, and prominent cephalic papilla. Mesocaudal projection of spermatic channel terminating in acute papilla. Mesial lobe subtriangular (Fig. 2C, D). Third maxilliped with exognath approximately 0.25 times length of ischium (Fig. 2F).

Remarks.—In his original description, Pretzmann (1965) designated as holotype a male specimen from lot USNM 106405 (19.2 mm × 31.6 mm). However, Pretzmann (1972) changed the holotype lot as USNM 106407. Pretzmann designated 14 males and two females from USNM 196405 as paratypes, and incorrectly stated that the two lots were from the same locality. Pretzmann (1972) illustrated the whole holotype specimen (figs. 170, 171), and a detached first male gonopod (figs. 311, 312). As indicated by Rodríguez (1994), this appendage could not have belonged to the holotype (USNM 106405) as it was found still attached.

Hypolobocera beieri Pretzmann, 1968

Fig. 3A–H

Hypolobocera (Hypolobocera) bouvieri beieri Pretzmann, 1968:9; 1971:17; 1972: 46, figs. 176–181, 308, 309.

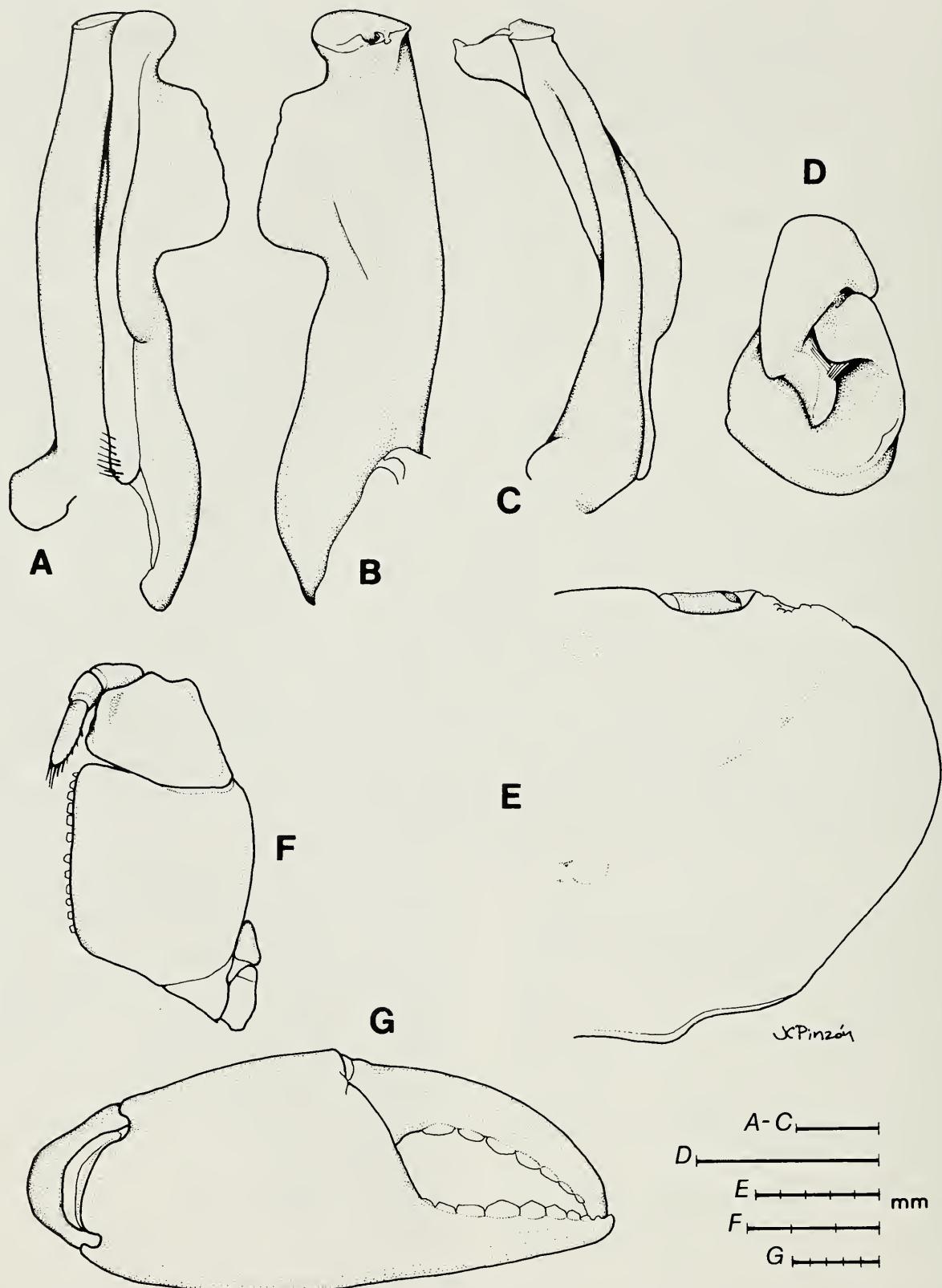


Fig. 2. *Hypolobocera andagoensis* (Pretzmann, 1965), male holotype, USNM 106405: A, left first gonopod, caudal view; B, same, cephalic view; C, same, mesial view; D, same, apex, distal view; E, carapace, dorsal view; F, left third maxilliped, external view; G, right chela, external view.

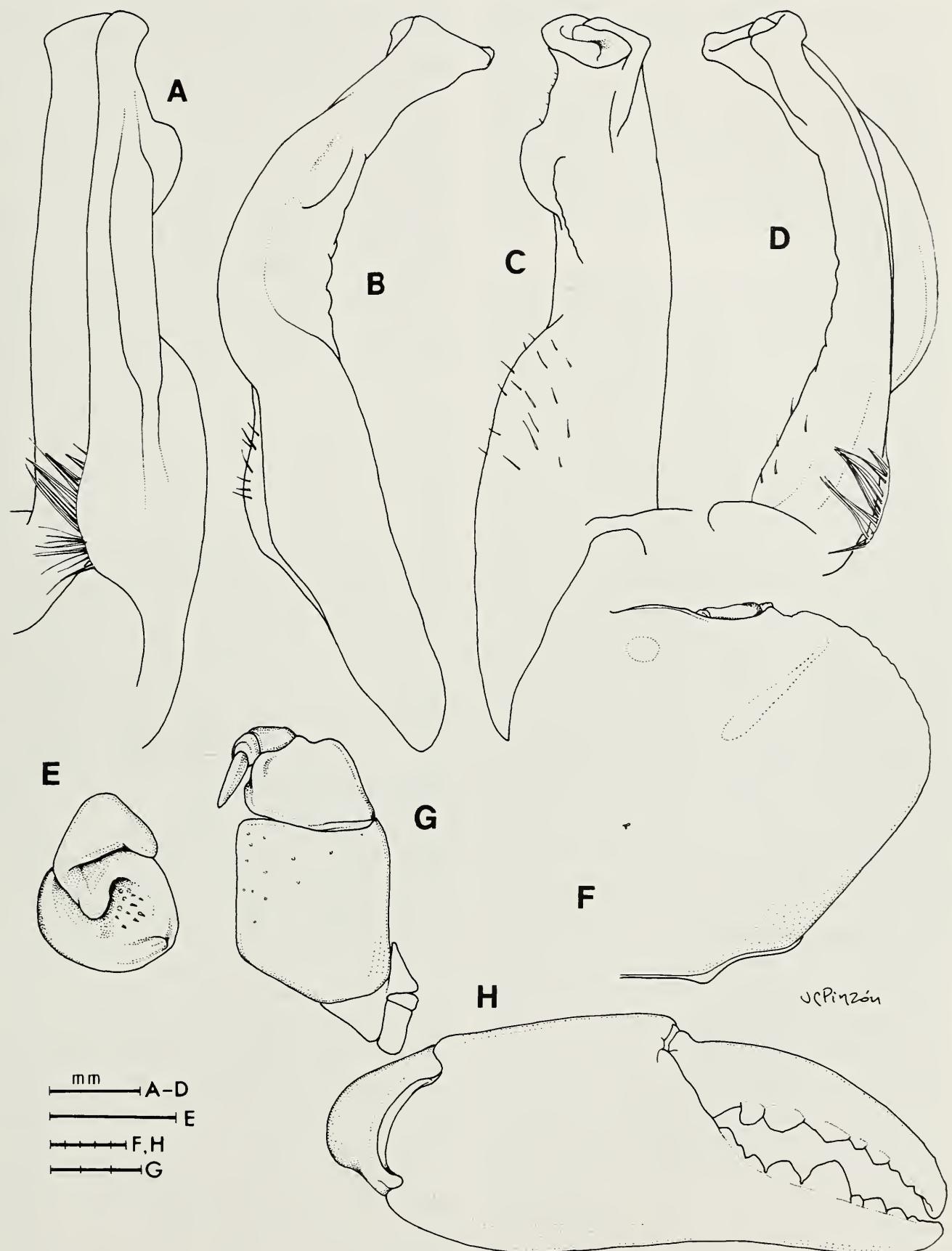


Fig. 3. *Hypolobocera beieri* Pretzmann, 1968, male, ICN-MHN-CR 1749: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view.

Hypolobocera (Hypolobocera) monticola steindachneri.—Pretzmann, 1972:46 (part.)

Hypolobocera beieri.—Rodríguez, 1982a: 46, figs. 19a, i, 20b, g, 24a–d.—Campos, 1985:275.—Prahl, 1985:43–47, figs. 1–7.—Prahl, 1988:172, fig. 2.—Rodríguez, 1994:297.—Rodríguez et al., 2002:3, 4, fig. 1J–K.

Material examined.—In addition to the material reported by Rodríguez (1982a), Prahl (1985), and Rodríguez et al. (2002), the following has been examined: Colombia, Valle del Cauca Department. Alto Anchicayá, 2 Oct 1982, leg. H. von Prahl, 1 ♂, carapace broken, TU 6383.—Dáguia, Vereda El Carmen, Santa Clara Farm 2 Feb 1984, leg. F. Recio, 2 ♂, 27.3 × 45.5 mm, 25.2 × 42.4 mm, 2 ♀, cl 22.3 × 35.8 mm, 19.5 × 30.6 mm, CRBMUV 84059.—Tuluá, Vereda Salónica, 16 Aug 1982, leg. uk, 1 ♂, 17.3 × 27.9 mm, CRBMUV 84002.—La Victoria, San Miguel, 3 km from highway to Tacotá, 4 Feb 1984, leg. uk, 2 ♂, 17.4 × 29.6 mm, 13.9 × 23.8 mm, CRBMUV 84003.—Palmira, Corregimiento La Buitrera, 5 Sep 1986, leg. R. Neira, 5 ♀, 21.8 × 34.2 to 9.4 × 13.0 mm, CRBMUV 82046.—Palmira, Corregimiento La Buitrera, 25 Jun 1982, leg. R. Neira, 1 ♂, 20.8 × 32.9 mm, CRBMUV 82048.—Bugalagrande, Guadualillo, 6 Jan 1986, leg. R. Neira, 2 ♂, 14.8 × 22.9 mm, 11.2 × 16.7 mm, 2 ♀, 16.7 × 25.5 mm, 9.3 × 15.8 mm, CRBMUV 86035.—Old road to Buenaventura, Vereda La Elsa, La Elsa stream, 840 m alt., 25 Aug 1984, leg. H. Restrepo, 1 ♀, 30.7 × 48.6 mm, CRBMUV 84061.—Cali, Corregimiento Felidia, 6 Mar 1988, leg. uk, 3 ♀, 23.6 × 40.8 to 19.2 × 30.0 mm, CRBMUV 88019.—Dáguia, Puerta del Diablo near to Tacotá, 3 Feb 1984, leg. H. Arteaga, 1 ♂, 16.9 × 27.7 mm, 1 ♀, 19.2 × 31.4 mm, CRBMUV 84066 (054 ADT-CRBMUV).—Jumbo, Vereda Manga Vieja, San Marcos stream, 4 Feb 1984, leg. uk, 1 ♂, 24.3 × 41.3 mm, 1 ♀, 30.7 × 48.1 mm, CRBMUV 84068.—Jamundí, San Antonio,

1 Apr 1984, leg. uk, 2 ♂, 20.9 × 33.8 mm, 19.8 × 30.5 mm, CRBMUV 84067.—Florida, Corregimiento Betania, 15 Dec 1984, leg. uk, 8 ♂, 21.8 × 34.0 to 11.3 × 16.9 mm, 5 ♀, 21.0 × 32.5 to 10.3 × 15.8 mm, CRBMUV 84076.—La Cumbre, 18 Feb 1984, leg. uk, 1 ♀, 21.7 × 34.0 mm, CRBMUV 84064.—Dáguia, La Virgen stream, 8 Feb 1984, leg. F.R., 1 ♂, 16.4 × 25.8, 2 ♀, 22.3 × 34.9 mm, 13.5 × 19.9 mm, CRBMUV 84062.—Versalles, Inspección La Guavía, La Esperanza Farm, 8 Feb 1984, leg. uk, 2 ♂, 19.7 × 31.2 mm, 10.9 × 18.2 mm, CRBMUV 86006.—Ansermanuevo, Seca stream, 26 Feb 1984, leg. F.R., 3 ♂, 22.3 × 32.7 to 18.5 × 29.3 mm, CRBMUV 84080.—Bolívar, Betania, 15 Dec 1984, leg. J. Restrepo, 7 ♂, 21.8 × 34.1 to 11.3 × 16.9 mm, 5 ♀, 21.0 × 32.5 to 10.3 × 15.8 mm, CRBMUV 84076.—Cali, Villa Carmelo, Bellavista Farm, 5 Mar 1983, leg. N. Mesa, 1 ♂, 15.7 × 25.7 mm, 2 ♀, 12.5 × 20.6 mm, 9.6 × 14.9 mm, ICN-MHN-CR 0135.—Calima, Azul River, 1600 m alt., 8 Feb 1984, leg. R.R., 1 ♀, 20.0 × 31.5 mm, ICN-MHN-CR 0548.—Cali, Vereda Peñas Blancas, Pichindé River, 1000 m alt., 29 Sep 1977, 1 ♀, 19.3 × 31.4 mm, ICN-MHN-CR 1264.—Yotoco, 19 km from Buga to Buenaventura, La Cabaña Farm, 1450 m alt., 6 Nov 1998, leg. A. Suárez, 1 ♂, 26.7 × 44.5 mm, ICN-MHN-CR 1749.—Bolívar, Inspección Cerro Azul, 900 m alt., 22 Feb 1994, leg. E. Flórez, 1 ♂, 19.5 × 30.7 mm, ICN-MHN-CR 1881.—Chocó Department, between Cucurrupí and Noanamá, Docordó stream, 5 Jan 1969, leg. B. Malkin, 1 ♂, 23.5 × 35.1 mm, 2 ♀, 45.8 × 69.4 mm, 42.2 × 63.7 mm, FMNH 3689.

Diagnosis.—First male gonopod slender, bent caudocephalically (Fig. 3B). Caudal ridge strong, fusiform, thickened at middle; ending in narrow ridge beyond lateral lobe. Lateral lobe small, slightly rounded, placed far from apex. Cephalic surface with tuberculated ridge parallel to lateral lobe (Fig. 3A–D). Apex outline slightly oval in distal view, with beak-like projection on cephalic

border; mesocephalic border transverse. Mesocaudal projection of spermatic channel terminated in rounded papilla. Mesial lobe subtriangular (Fig. 3C, E). Third maxilliped with exognath 0.30–0.40 times length of ischium (Fig. 3G).

Remarks.—Pretzmann (1972) considered the paratypes of this species to be *Hypolobocera (Hypolobocera) monticola steindachneri* Pretzmann, 1968. Rodríguez (1994), however, disagreed and designated the paratypes again as *Hypolobocera beieri*, based on features of the gonopod and the carapace.

Hypolobocera bouvieri bouvieri

(Rathbun, 1898)

Fig. 4A–H

Pseudothelphusa bouvieri Rathbun, 1898: 518, 533, 537, fig. 9.—Young, 1900: 215.—Rathbun, 1905:289.—Coifmann, 1939:107.

Strengeria (Strengeria) bouvieri Pretzmann, 1965:7.

Hypolobocera (Hypolobocera) bouvieri Schmitt, 1969:102.

Hypolobocera (Hypolobocera) bouvieri bouvieri Pretzmann, 1971:17.—Pretzmann, 1972:45, figs. 194–196, 278–280.

Hypolobocera bouvieri bouvieri.—Rodríguez, 1982a:55, 56, figs. 19, 21, 29.—Campos, 1985:276–277.—Rodríguez et al., 2002:6.

Material examined.—In addition to the material reported by Rodríguez (1982a), and Rodríguez et al. (2002), the following has been examined from six Colombian Departments. (1) Boyacá Department. Soatá, Vereda La Acosta, El Arenal Farm, Soatá-La Uvita Highway, 1500 m alt., 10 Aug 1988, 8 ♂, 30.1 × 49.0 to 17.3 × 27.2 mm, 10 ♀, 38.6 × 65.1 to 18.7 × 29.3 mm, ICN-MHN-CR 0887.—Soatá, Vereda Llano-grande, Soatá-Duitama Highway, 2050 m alt., 11 Aug 1988, 3 ♂, 19.6 × 30.8 to 13.9 × 21.9 mm, 3 ♀, 18.2 × 28.6 to 15.3 × 24.3 mm, ICN-MHN-CR 0889.—Puerto Boyacá, Inspección Puerto Romero. Vereda

Dosquebradas, 500 m alt., 18 Sep 1996, 9 ♂, 41.1 × 69.1 to 13.0 × 20.5 mm, 9 ♀, 54.1 × 90.4 to 15.1 × 23.6 mm, ICN-MHN-CR 1605, 1613.—Vereda La Fiebre, La Fiebrecita stream, 350 m alt., 20 Sep 1996, 7 m, 23.2 × 35.0 to 12.8 × 18.6 mm, 7 ♀, 50.2 × 81.9 to 21.0 × 33.1 mm, ICN-MHN-CR 1610, 1611.—Stream in Campamento Techint, 320 m alt., 26 Sep 1996, 1 ♀, 31.8 × 57.5 mm, ICN-MHN-CR 1625.—Honda stream, 400 m alt., 30 Sep 1997, leg. E. Flórez, 1 ♂, 32.1 × 50.7 mm, ICN-MHN-CR 1784.—Vereda La Cristalina, La Cristalina stream, 350 m alt., 4 Mar 2000, leg. L. Annichianico, 2 ♀, 22.9 × 35.0 mm, 17.0 × 26.1 mm, ICN-MHN-CR 1841.—Vereda La Fiebre, La Fiebre stream, 380 m alt., 5 Mar 2000, leg. J. González, 1 ♂, 18.4 × 28.5 mm, ICN-MHN-CR 1843.—Vereda La Fiebre, El Golfo Farm, 450 m alt., 8 Mar 2000, leg. N. Garzón, 3 ♂, 47.8 × 79.4 to 23.5 × 37.0 mm, 3 ♀, 31.4 × 48.8 to 11.7 × 25.6 mm, ICN-MHN-CR 1847.—Vereda El Oasis, Dosquebradas stream, 520 m alt., 9 Mar 2000, leg. N. Rodríguez, 1 ♀, 61.4 × 101.3 mm, ICN-MHN-CR 1849.—Puerto Boyacá, Vereda El Terminal, El Terminal stream, 320 m alt., 22 Sep 1996, 1 ♂, 23.3 × 34.6 mm, 4 ♀, 40.6 × 64.0 to 19.9 × 29.6 mm, ICN-MHN-CR 1615.—Puerto Boyacá, Vereda La Pizarra, La Pizarra stream, 270 m alt., 25 Sep 1996, 2 ♂, 18.6 × 30.0 mm, 13.0 × 18.5 mm, 4 ♀, 30.7 × 46.2 to 16.7 × 24.4 mm, ICN-MHN-CR 1624.—Otanche, Vereda El Oasis, Honda stream, 625 m alt., 19 Sep 1996, 1 ♂, 27.1 × 43.4 mm, 1 ♀, 62.6 × 102.5 mm, ICN-MHN-CR 1607. (2) Caldas Department. Samaná, Vereda La Miel, Campamento Tasajos, affluent of La Miel River, 550 alt., 18–25 Apr 1994, 2 ♀, cl 41.0 × 64.7 mm, 39.8 × 64.0 mm, 1 juvenile, ICN-MHN-CR 1329, 1345.—Samaná, km 1.3 Samaná-Los Pomos Highway, 1100 m alt., 24 Apr 1994, leg. P. M. Ruiz, 1 ♀, 19.4 × 30.2 mm, ICN-MHN-CR 1352.—Samaná, La Cristalina River, 430 m alt., 25 Apr 1994, leg. P. M. Ruiz, 1 ♀, 26.4 × 41.3 mm, ICN-MHN-CR 1354.—Victo-

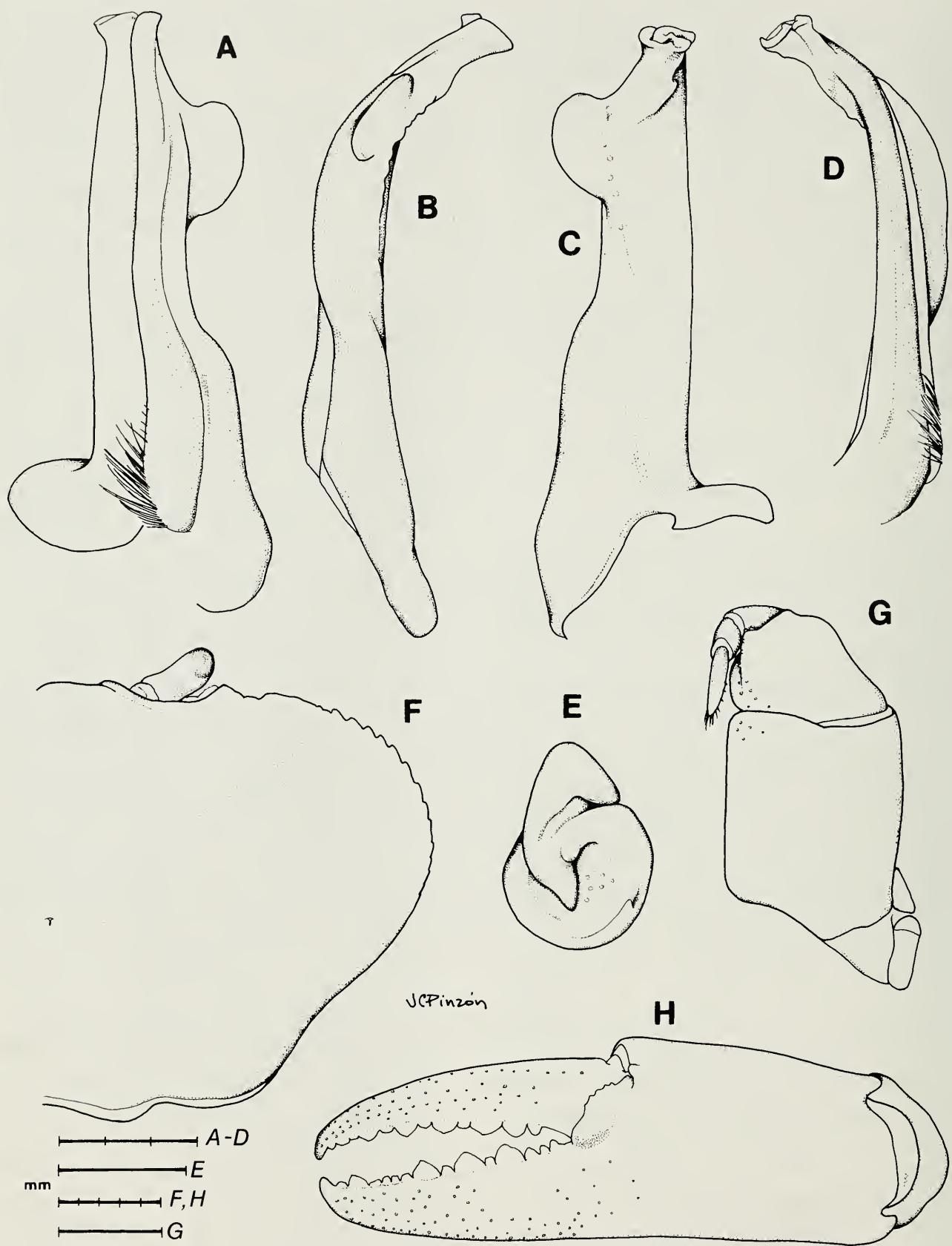


Fig. 4. *Hypolobocera bouvieri bouvieri* (Rathbun, 1898), male, ICN-MHN-CR 1556: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, left chela, external view.

ria, Vereda Hamburgo, Albión stream, 900 m alt., 19–24 Apr 1994, 4 ♂, 30.9 × 46.6 to 13.4 × 21.5 mm, 6 ♀, 49.2 × 82.1 to 15.0 × 22.9 mm, ICN-MHN-CR 1331, 1332, 1343.—Victoria, Vereda Canaán, Victoria-Samaná Highway, 1100 m alt., 19 Apr 1994, 1 ♂, carapace broken, ICN-MHN-CR 1334. (3) Cundinamarca Department. La Mesa, 1991, leg. C. Vieira, 1 ♂, 21.9 × 31.3 mm, CRBMUV 81067.—Sasaima, 14 Mar 1982, 4 ♂, 23.4 × 34.7 to 15.4 × 23.3 mm, 1 ♀, 19.9 × 30.2 mm, CRBMUV 82049, 82050.—Sasaima, El Tranvía stream, 1500 m alt., 26 Feb 1984, 7 Jul 1986, 1 ♂, 41.1 × 61.9 mm, 1 ♀, 32.7 × 50.9 mm, ICN-MHN-CR 0545, 0637.—Sasaima, Vereda Guane, Miramar Farm, 1300–1450 m alt., 21 Apr 1987, 5 ♂, 24.0 × 36.9 to 11.7 × 17.8 mm, 4 ♀, 21.5 × 32.8 to 15.4 × 24.0 mm, ICN-MHN-CR 0719, 0721.—San Antonio de Tequendama, Inspección Santandercito, 22 Sep 1982, 18 Mar 1983, leg. H. von Prahl, 1 ♂, 43.0 × 71.2 mm, 4 ♀, 46.4 × 76.0 mm to 32.8 × 51.0 mm, CRBMUV 82054, 83087.—San Antonio del Tequendama, San Antonio del Tequendama-Araujo Highway, 1450 m alt., 24 Apr 1987, 2 ♂, cl 39.5 × 61.8 mm, 31.5 × 50.4 mm, ICN-MHN-CR 0752.—San Antonio del Tequendama, Vereda San José, Barbosa stream, 1500 m alt., 24 Apr 1987, 1 ♂, 24.1 × 37.6 mm, 1 ♀, 45.0 × 72.3 mm, ICN-MHN-CR 0754.—San Antonio del Tequendama, Vereda Laguna Grande, El Curí stream, 1550 m alt., 6 Apr 1989, 7 ♂, 20.0 × 30.5 to 16.3 × 24.5 mm, 4 ♀, 23.2 × 36.8 to 16.2 × 24.1 mm, ICN-MHN-CR 0947.—Quebradanegra, Vereda Nacederos, 1250 m, 4 Mar 1983, 2 ♂, 45.5 × 77.2 mm, 35.0 × 56.8 mm, ICN-MHN-CR 0129, 0130.—Quebradanegra, Corregimiento La Magdalena, highway to Utica, 1300 m alt., 4–5 Mar, 23 Aug 1983, 3 ♂, 47.1 × 77.4 to 31.1 × 50.5 mm, 5 ♀, 48.2 × 76.8 to 16.3 × 24.6 mm, ICN-MHN-CR 0131, 0132, 0133, 0134, 0513, 0514.—Quebradanegra, Corregimiento La Magdalena, Paraiso Farm, 1180 m alt., 24 Aug 1983, 4 ♂, 31.0 × 49.3 to

13.2 × 20.3 mm, 1 ♀, 17.8 × 26.9 mm, ICN-MHN-CR 0516, 0517, 0519.—Quebradanegra, Vereda Pilares, Honduras stream, 800 m alt., 21 Apr 1987, 1 ♂, 44.5 × 75.5 mm, ICN-MHN-CR 0722.—Guaduas, Vereda El Trigo, San Francisco River, 1300–1650 m alt., 6 Mar, 22 Jun 1983, 5 ♂, 57.6 × 94.7 to 13.9 × 22.5 mm, 2 ♀, 56.4 × 91.0 mm, 53.6 × 86.4 mm, ICN-MHN-CR 0136, 0137, 0138, 0456.—Guaduas, Vereda Versalles, El Chocho stream, 1050 m alt., 20 Apr 1983, 1 ♂, 39.5 × 63.4 mm, 3 ♀, 54.4 × 89.1 to 41.9 × 65.3 mm, ICN-MHN-CR 0143, 0144, 0145, 0146.—Guaduas, Vereda Cucharal, Vallarta Farm, 1300 m alt., 21 Apr 1983, 1 ♂, 51.6 × 86.3 mm, 1 ♀, 44.4 × 73.3 mm, ICN-MHN-CR 0448, 0449.—Guaduas, Corregimiento Guaduero, Varelas stream, 575 m alt., 21 Jun 1983, 2 ♂, 14.3 × 22.2 mm, 18.1 × 27.4 mm, 1 ♀, 19.9 × 31.7 mm, ICN-MHN-CR 0462, 0480.—Guaduas, Vereda El Raízal y Cajón, 1300 m alt., 22 Jun 1983, 2 ♂, cl 55.2 × 91.3 mm, 24.2 × 35.6 mm, 1 ♀, 48.8 × 78.8 mm, ICN-MHN-CR 0467–0469.—Guaduas, Chaguaní stream, 1075 m alt., 24 Jun 1983, 4 ♂, 22.8 × 37.0 to 14.3 × 22.2 mm, 1 ♀, 19.8 × 31.3 mm, ICN-MHN-CR 0474, 0475, 0476.—La Paz, Vereda Carrapal, Carrapal stream, 1050 m alt., 19 Apr 1983, 3 ♂, 33.0 × 54.5 to 26.6 × 43.0 mm, ICN-MHN-CR 0141, 0142.—Caparrapí, Corregimiento El Dinal, El Ajón stream, 560–580 m alt., 21, 22 Jun 1983, 10 ♂, 32.7 × 51.2 to 14.7 × 20.8 mm, ICN-MHN-CR 0459, 0460, 0463–0465.—Caparrapí, Vereda Varelas, Carrapal stream, 550 m alt., 23 Jun 1983, 4 ♂, 39.3 × 64.6 to 21.3 × 32.4 mm, 5 ♀, 29.3 × 46.8 to 15.0 × 22.2 mm, ICN-MHN-CR 0470–0473.—Utica, km 7 highway to La Palma, La Guayabala stream, 775 m alt., 25–26 Aug 1983, 9 ♂, 38.9 × 62.1 to 16.3 × 24.2 mm, 2 ♀, 36.9 × 58.3 mm, 26.7 × 43.0 mm, ICN-MHN-CR 0520–0524.—Guayabal de Síquima, 1400 m alt., 4 Mar 1984, 4 ♂, 17.8 × 27.9 to 10.9 × 16.2 mm, 2 ♀, 14.6 × 23.0 mm, 12.8 × 19.6 mm, ICN-MHN-CR 0546.—Viotá, Vereda Ata-

lá, 1200 m alt., 19 May 1984, leg. J. M. Torres, 1 ♂, 53.8 × 88.0 mm, ICN-MHN-CR 0574.—Tena, Vereda El Rosario, 1500 m alt., 6 Jun 1984, 1 ♂, 39.2 × 62.8 mm, 1 ♀, 48.6 × 81.1 mm, ICN-MHN-CR 0589.—Tena, Vereda El Rosario, Tena-Los Alpes Highway, 1350–1450 m alt., 23–24 Apr 1987, 8 Apr 1989, 5 ♂, 50.3 × 79.8 to 17.7 × 28.1 mm, 10 ♀, 48.7 × 79.0 to 18.0 × 26.8 mm, ICN-MHN-CR 0735–0737, 0748, 0945.—Tena, 2 km highway to San Antonio de Tequendama, 1150 m alt., 24 Apr 1987, 1 ♂, 19.7 × 30.4 mm, 2 ♀, 46.0 × 74.0 mm, 42.9 × 70.1 mm, ICN-MHN-CR 0741, 0742.—Tena, Vereda Guasimal, Las Mercedes Farm, 1100 m alt., 24 Apr 1987, 1 ♀, 27.7 × 43.2 mm, ICN-MHN-CR 0743.—Villeta, Vereda La Masata, Cune stream, 850 m alt., 30 Jan 1985, leg. E. Linares, 4 ♂, 11.7 × 17.9 to 10.3 × 15.2 mm, ICN-MHN-CR 0611.—Villeta, Vereda Cune, La Lorena Farm, 1000 m alt., 22 Apr 1987, 5 ♂, 30.2 × 48.6 to 18.2 × 27.7 mm, 4 ♀, 27.2 × 43.7 to 11.7 × 18.1 mm, ICN-MHN-CR 0723–0725.—San Francisco, San Miguel stream, 1500 m alt., 8 Mar 1987, leg. J. Gaitán, 1 ♂, carapace broken, ICN-MHN-CR 0684.—La Vega, Vereda Tierra Vieja, La Vega-Sasaima Highway, 1250 m alt., 20 Apr 1987, 1 ♂, 21.5 × 35.2 mm, ICN-MHN-CR 0716.—Anolaima, Vereda Pinimá, 1400 m alt., 23 Apr 1987, 4 ♂, 35.0 × 54.5 to 13.8 × 21.7 mm, ICN-MHN-CR 0729.—Cachipay, Vereda La María, El Salitre stream, 1000 m alt., 23 Apr 1987, 1 ♂, 47.9 × 79.8 mm, 1 ♀, 24.6 × 38.6 mm, ICN-MHN-CR 0731.—Cachipay, Cantagalito and El Refugio streams, 1800 m alt., 7 Jan 1996, leg. R. Casallas, 1 ♂, 18.8 × 29.2 mm, ICN-MHN-CR 1658.—La Mesa, Vereda El Rosario, Los Micos stream, 1200 m alt., 23 Apr 1987, 1 ♂, 25.5 × 40.2 mm, 2 ♀, cl 40.1 × 65.1 mm, 34.0 × 55.1 mm, ICN-MHN-CR 0734.—La Mesa, Vereda Zapata, 1200 m alt., 24 Apr 1987, 2 ♀, 25.4 × 41.7 mm, 14.0 × 22.0 mm, ICN-MHN-CR 0739.—La Mesa, Tres Esquinas, 1200 m alt., 24 May 1987, leg. R. Jaramillo, 1 ♀, 38.4 × 60.0 mm, ICN-MHN-CR 0759.—La Mesa, Vereda Florán, Payacala stream, 1200 m alt., 22 May 1989, leg. C. Galán, 2 ♂, cl 52.3 × 87.3 mm, 48.9 × 82.5 mm, ICN-MHN-CR 0960.—Mesitas del Colegio, Vereda Coiba, 990 m alt., 29 Sep 1990, leg. G. Acosta, 4 ♂, 29.5 × 47.8 to 15.5 × 23.5 mm, 2 ♀, 22.1 × 34.9 mm, 18.1 × 27.2 mm, ICN-MHN-CR 1202.—Fusagasugá, Vereda La Pampa, Fusa-Chinauta Highway, 2000 m alt., 8 Jan 1993, leg. M. Ramírez, 1 ♀, 47.4 × 77.5 mm, ICN-MHN-CR 1293.—Silvania, Vereda Panamá Alta, San Antonio de los Bogas Farm, El Hato stream, 1830 m alt., 8 Aug 1995, leg. R. Restrepo, 1 ♀, 43.0 × 73.0 mm, ICN-MHN-CR 1458.—Yacopí, Inspección Apoyos, El Hático stream, 850 m alt., 26 Oct 1995, leg. G. Galvis, 1 ♀, 19.0 × 30.4 mm, ICN-MHN-CR 1512.—Yacopí, Inspección Guadualito, Vereda La Laguna, 900–1050 m alt., 28–29 Oct 1995, 2 ♂, 41.7 × 67.0 mm, 30.2 × 47.0 mm, 1 ♀, 34.2 × 55.7 mm, ICN-MHN-CR 1519–1521.—Yacopí, Inspección Guadualito, Vereda Lamal, Agua Blanca stream, 700 m alt., 31 Oct–4 Nov 1995, 2 ♂, 56.2 × 90.1 mm, 11.6 × 17.4 mm, 4 ♀, 54.5 × 86.2 to 11.3 × 17.1 mm, ICN-MHN-CR 1524, 532, 1535.—Yacopí, Inspección Guadualito, Vereda Gramales, Barbascales, Salitrona stream, 740 m alt., 2 Nov 1995, 1 ♂, 17.0 × 26.0 mm, ICN-MHN-CR 1528.—Yacopí, Inspección Guadualito, Vereda Lamal, Albercas, 900 m alt., 3 Nov 1995, 1 ♀, 55.0 × 89.3 mm, ICN-MHN-CR 1529.—Yacopí, Vereda La Oscura, La Oscura stream, 350 m alt., 24 Sep 1996, 6 ♂, 40.5 × 64.8 to 12.6 × 15.6 mm, 8 ♀, 24.4 × 37.2 to 10.6 × 15.6 mm, ICN-MHN-CR 1621. (4) Norte de Santander Department. Pamplonita, stream near to town, 1600 m alt., 26 Mar 1987, 2 ♂, 20.0 × 30.2 mm, 20.6 × 31.0 mm, 1 ♀, 29.8 × 46.2 mm, ICN-MHN-CR 0691.—Pamplonita, Vereda San José de Cunutá, 1100–1250 m alt., 26 Mar 1987, 2 ♂, 39.5 × 63.2 mm, 32.8 × 51.3 mm, ICN-MHN-CR 0692, 0693.—Chinácota, Vereda El Urengue, 1075 m alt., 26 Mar 1987, 1 ♂, 35.2 × 57.3

mm, ICN-MHN-CR 0694.—Chinácota, Vereda Sonival, Chinácota-Toledo Highway, 1600 m alt., 27 Mar 1987, 1 ♀, 42.0 × 67.7 mm, ICN-MHN-CR 0699.—Chinácota, Vereda El Asilo, Cácuia stream, Chinácota-Ragonvalia Highway, 1600 m alt., 9 Oct 1988, 1 ♀, 34.6 × 55.2 mm, ICN-MHN-CR 0928.—Bucarasica, Vereda Santa Rita, Sardinata-Ocaña Highway, 400 m alt., 29 Mar 1987, 3 ♂, 21.6 × 35.2 to 14.2 × 22.5 mm, 1 ♀, 16.5 × 25.5 mm, ICN-MHN-CR 0703.—Bucarasica, Vereda Fortunas, Sardinata-Ocaña Highway, 500 m alt., 29 Mar 1987, 10 ♂, 19.4 × 31.4 to 12.5 × 20.1 mm, 3 ♀, 26.9 × 44.4 to 16.7 × 26.0 mm, ICN-MHN-CR 0704.—Bochalema, Corregimiento La Donjuana, Vereda Cachirí, Durania-Lamus Highway, 1050 m alt., 30 Mar 1987, 1 ♂, 22.5 × 36.1 mm, 1 ♀, 18.0 × 27.7 mm, ICN-MHN-CR 0705.—Bochalema, Corregimiento La Donjuana, Vereda Cachirí, 1125 m alt., 30 Mar 1987, 5 ♀, 26.8 × 41.8 to 11.2 × 17.6 mm, ICN-MHN-CR 0706.—Durania, Vereda La Palma, Lavapatas stream, 900 m alt., 31 Mar 1987, 6 ♂, 34.6 × 55.6 to 16.0 × 24.5 mm, 1 ♀, 33.8 × 55.9 mm, ICN-MHN-CR 0708.—Cucutilla, Vereda Cuesta Rica, Limoncito stream, 1700 m alt., 8 Oct 1988, 1 ♀, 25.9 × 38.6 mm, ICN-MHN-CR 0926.—Cucutilla, Vereda Aguada Bajo, Pamplona-Cucutilla Highway, 1450 m alt., 8 Oct 1988, 1 ♀, 35.1 × 56.5 mm, ICN-MHN-CR 0927. (5) Santander Department. Piedecuesta, Vereda El Fical, San Miguel stream, 950 m alt., 1 Apr 1987, 3 ♂, 33.8 × 55.2 to 20.1 × 35.7 mm, 13 ♀, 37.3 × 61.0 to 20.1 × 33.3 mm, ICN-MHN-CR 0710.—Aratoca, Vereda Monterredondo, San Miguel stream, 1650 m alt., 1 Apr 1987, 1 ♂, 19.6 × 30.0 mm, 1 ♀, 18.8 × 45.4 mm, and 15 juveniles, ICN-MHN-CR 0711.—Simacota, Vereda Náuno, Socorro-Simacota Highway, 1050 m alt., 22 Sep 1988, 3 ♂, 19.1 × 28.8 to 16.4 × 24.9 mm, 2 ♀, 18.7 × 28.9 mm, 15.6 × 23.7 mm, and 2 juveniles, ICN-MHN-CR 0906.—Simacota, Vereda Pedregales, San Miguel stream, Sogamoso-Simacota Highway, 950

m alt., 22 Sep 1988, 2 ♂, 39.3 × 62.7 mm, 14.7 × 22.1 mm, ICN-MHN-CR 0907.—Chima, Vereda Tierra Amarilla, El Guamal stream, Simacota-Chima Highway, 1050 m alt., 22 Sep 1988, 1 ♂, 26.3 × 41.4 mm, ICN-MHN-CR 0908.—Suáita, Vereda La Aguadita, La Aguadita stream, 1600 m alt., 5 Jan 1994, leg. A. Rodríguez, 3 ♂, 16.7 × 29.5 to 12.2 × 19.3 mm, ICN-MHN-CR 1452. (6) Tolima Department. 8 km South of Ibagué, Combeima River, 12 Jun 1977, leg. H. Díaz, 1 ♂, 52.0 × 84.0 mm, 6 ♀, 54.3 × 88.4 to 45.2 × 71.5 mm, IVIC.—Icononzo, Las Lajas stream, 1070 m alt., 28 Mar 1978, leg. C. Escallón, 3 ♂, 37.1 × 60.6 to 35.3 × 57.2 mm, ICN-MHN-CR 0499, 0500, 0501.—Icononzo, Vereda Chappar, La Juanita Farm, 1200 m alt., 16 Nov 1986, 1 ♂, 25.5 × 40.7 mm, ICN-MHN-CR 0681.

Diagnosis.—Chelae of male with small rounded or oblong tubercle on external base of mobile fingers, and prominent, rounded tubercle on external base of fixed fingers (Fig. 4H). First male gonopod with caudal ridge long, slightly sinuous; ending in narrow ridge beyond lateral lobe (Fig. 4A). Lateral lobe semicircular, with or without crenulations over distal margin. Cephalic surface with transverse crest on distal half, and tuberculated ridge parallel to lateral lobe (Fig. 4A–D). Apex outline oval, borders raised; prominent cephalic papilla and auxiliary rounded papilla near spermatic channel. Mesocaudal projection of spermatic channel terminating in blunt papilla. Mesial lobe subtriangular (Fig. 4D, E). Third maxilliped with exognath 0.20–0.30 times length of ischium (Fig. 4G).

Remarks.—This subspecies is widely distributed in the slopes of the Central and Eastern Cordilleras where waters drain to the Magdalena River. In males, the main feature that distinguishes this subspecies from the others are the chelae, which feature a prominent, rounded tubercle on the external base of the fixed fingers (Fig. 4H).

Hypolobocera bouvieri angulata
(Rathbun, 1915)
Fig. 5A–H

Pseudothelphusa angulata Rathbun, 1915: 98.—Coifmann, 1939:106.—Rodríguez, 1966:129, fig. 9.—Rodríguez, 1967:10.

Strengeria (Strengeria) angulata Pretzmann, 1965:7.

Hypolobocera (Hypolobocera) bouvieri angulata Pretzmann, 1971:17, pl. 17.—Pretzmann, 1972:45, figs. 156–158, 208–210.

Hypolobocera bouvieri angulata.—Rodríguez, 1982a:56–57.—Rodríguez, 1994: 299.—Campos, 1985:275–276, Rodríguez et al., 2002:6.

Material examined.—In addition to the material reported by Rodríguez (1982a), and Rodríguez et al. (2002), the following has been examined: Colombia, Magdalena Department. Santa Marta, Minca, 880 m alt., M holotype, 40.0 × 65.0 mm, USNM 98398.—Sierra Nevada de Santa Marta, 10 Aug 1987, leg. uk, 1 ♂, 30.4 × 47.9 mm, CRBMUV 87014.—Santa Marta, Parque Nacional, Natural Tayrona, Los Cedros. 2–6 Jul 1983, leg. G. Galvis. 4 ♂, 43.3 × 61.4 to 16.1 × 25.8 mm, 6 ♀, 42.6 × cb 59.0 to 16.8 × 24.6 mm, ICN-MHN-CR 0528–0530.—Santa Marta, Minca, 850 m alt., 23 May 1989, leg. R. Sánchez, 1 ♀, 34.6 × 55.6 mm, ICN-MHN-CR 0961.—Santa Marta, Vereda Alto Guachaca, stream affluent of Guachaca River, 700 m alt., 30 Sep 1992, leg. A. Ferrer, 1 ♀, 54.6 × 87.4 mm, ICN-MHN-CR 1296.—Cesar, Serranía de Perijá, La Jagua de Ibirico, Corregimiento La Victoria de San Isidro. Vereda Alto de las Flores, stream near Escuela Nueva de las Flores, 1200 m alt., 8 Mar 1996, 2 ♂, 47.5 × 79.2 mm, 21.9 × 33.3 mm, 1 ♀, 13.4 × 19.9 mm, ICN-MHN-CR 1551, 1556.—Vereda Nueva Granada, El Indio stream, 590 m alt., 9 Mar 1996, 4 ♂, 57.3 × 95.5 to 15.8 × 23.9 mm, 2 ♀, 48.0 × 78.1 mm, 20.0 × 31.4 mm, ICN-MHN-CR 1554, 1555, 1573.—Vereda El Zumbador, El Zumbador stream, 400 m alt., 10 Mar

1996, 2 ♂, 19.8 × 30.7 mm, 20.6 × 31.5 mm, 6 ♀, 38.2 × 59.5 to 13.0 × 20.3 mm, ICN-MHN-CR 1557.—Vereda Alto de las Flores, Tucuy River, 915 m alt., 11 Mar 1996, 2 ♂, 29.9 × 34.6 mm, 21.0 × 32.0 mm, 1 ♀, 21.8 × 35.2 mm, ICN-MHN-CR 1558.—Vereda El Zumbador, Zumbador River, 1000 m alt., 14–17 Mar 1996, 8 ♂, 48.3 × 73.9 to 15.0 × 23.0 mm, 16 ♀, 54.2 × 89.2 to 8.3 × 13.8 mm, 2 juveniles, ICN-MHN-CR 1563, 1564, 1566, 1567.—Vereda Nueva Granada, Buenavista Farm, Zumbador River, 500 m alt., 20 Mar 1996, leg. O. V. Castaño, 1 ♂, 24.1 × 36.7 mm, 1 ♀, 42.4 × 69.9 mm, ICN-MHN-CR 1572.—

Venezuela. Estado Zulia, Serranía de Perijá, Socuy River, Cueva Los Laureles, 1300 m, alt., 20 Dec 1990, leg. A. L. Viloria and T. R. Barros, 1 ♂, 39.8 × 62.1 mm, IVIC.—Estado Zulia, Serranía de Perijá, Socuy River, Los Encantos, 850 m, alt., 20 Dec 1995, leg. F. Herrera, 1 ♂, 29.5 × 47.7 mm, IVIC.

Diagnosis.—Chelae of male with small tubercle on external base of mobile fingers, and swelling on external base of fixed fingers (Fig. 5H). First male gonopod with caudal ridge long, either sinuous or straight; ending in narrow ridge beyond lateral lobe (Fig. 5A, B). Lateral lobe usually subtriangular with small crenulations on distal margin. Cephalic surface with transverse crest on distal half and tuberculated ridge parallel to lateral lobe (Fig. 5A–D). Apex outline oval in distal view; prominent cephalic papilla, and auxiliary rounded papilla near spermatic channel. Mesocaudal projection of spermatic channel terminating in slightly acute papilla. Mesial lobe subtriangular (Fig. 5D, E). Third maxilliped with exognath 0.20–0.32 times length of ischium (Fig. 4G).

Remarks.—This subspecies is broadly distributed in an area that reaches from the Sierra Nevada de Santa Marta to both slopes of the Sierra de Perijá and the Cordillera de Mérida in Venezuela. The distribution includes two disjunct areas that cover two different basins: the Cesar, and the

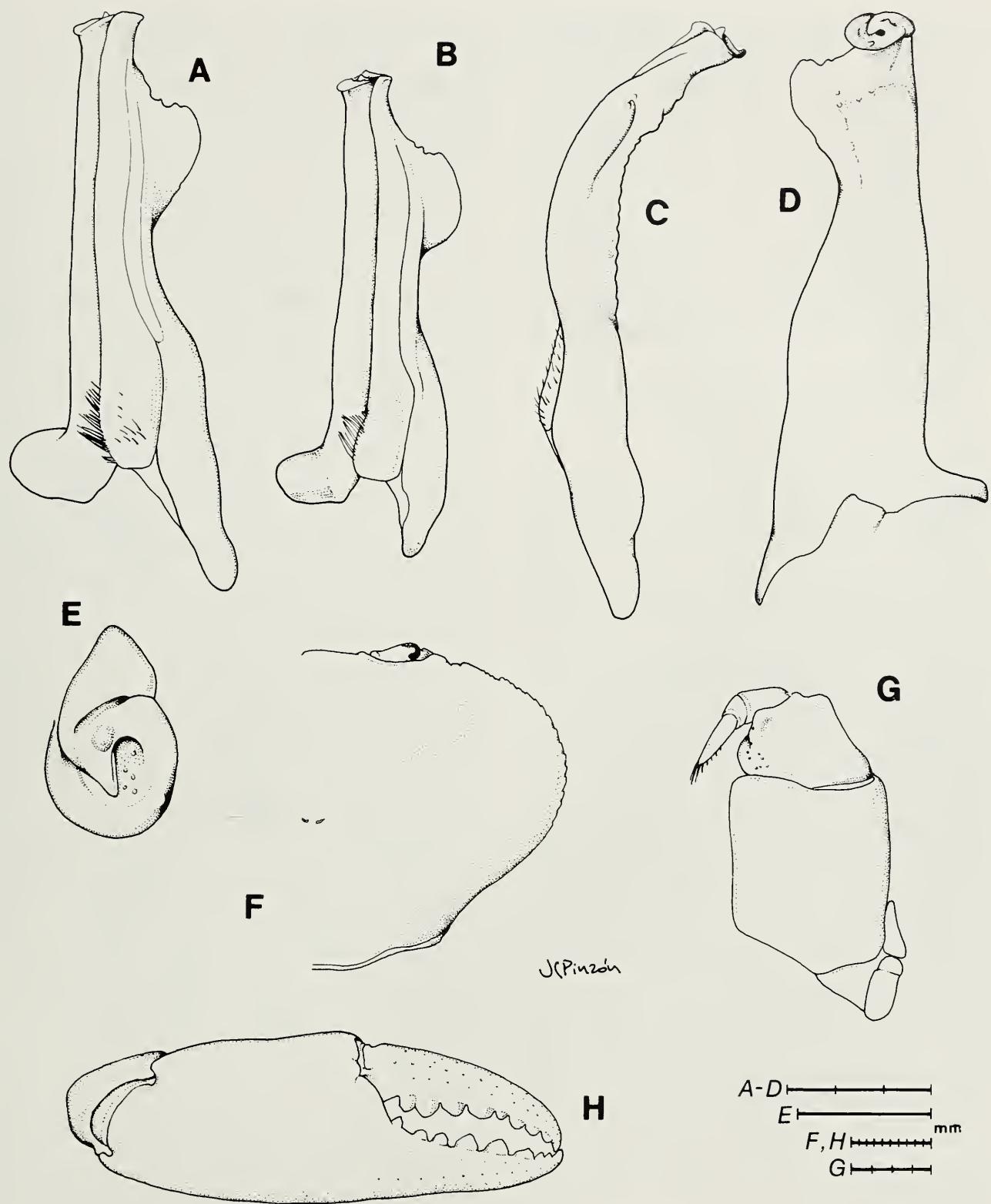


Fig. 5. *Hypolobocera bouvieri angulata* (Rathbun, 1915), male, Colombia, Santa Marta, ICN-MHN-CR 0528: A, left first gonopod, caudal view; C, same, lateral view; D, same cephalic view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view. Male, Venezuela, Estado Zulia, Serranía de Perijá, Socuy River. IVIC: B, left first gonopod, caudal view.

Catatumbo Rivers. This type of distribution, possibly due to temperature differences, is considered a relict distribution. There are slight differences in the first male gonopods of the specimens found in the Sierra Nevada de Santa Marta in Colombia and in the Sierra de Perijá in Venezuela. The most significant difference is the shape of the lateral lobe, which is slightly semicircular (Fig. 5B). This difference is most likely caused by different environmental conditions.

Hypolobocera bouvieri monticola
(Zimmer, 1912)
Fig. 6A–H

Pseudothelphusa monticola Zimmer, 1912: 3, figs. 6–10, pl. 1.—Coifmann, 1939: 108.

Strengeria (Strengeria) monticola Pretzmann, 1965:7.

Hypolobocera (Hypolobocera) monticola monticola Pretzmann. 1971:17.—Pretzmann, 1972:46, figs. 197–199, 206, 207.

Hypolobocera bouvieri monticola.—Rodríguez, 1982a:56, figs. 19, 21, 30.

Material examined.—Colombia. (1) Antioquia Department. 28 Jun 1966, leg. uk, 1 ♂, 22.7 × 37.1 mm, CRBMUV 66001.—Los Lagos, leg. uk, 1 ♂, carapace broken, CRBMUV 67001.—Caucasia, Rojo River, 5 Jan 1969, leg. M. Serna, 1 ♂, 23.8 × 38.7 mm, 1 ♀, 14.5 × 26.1 mm, CRBMUV 69002.—San Luis, Vereda Manizales, 1600 m alt., 12 Nov 1981, leg. P. Pinto, 1 ♀, 49.5 × 85.9 mm, ICN-MHN-CR 0128.—Santa Fé de Antioquia, Vereda Chaparral, highway to Guasabia, 1600 m alt., 6 Jan 1988, leg. M. T. Murillo, 2 ♂, 24.3 × 39.7 mm, 15.6 × 24.4 mm, 2 ♀, 20.1 × 36.0 mm, 15.0 × 23.0 mm, CN-MHN-CR 0849.—Urrao, Valle de Pérdidas, 1700 m alt., 1 Sep 1994, leg. P. Duque, 2 ♂, cl 21.0 × 32.7 mm, 14.0 × 21.4 mm, 2 ♀, cl 19.5 × 29.8 mm, 13.6 × 20.7 mm, ICN-MHN-CR 1384.—Urrao, Valle de Pérdidas, 1750 m alt., 14 Mar 1994, leg. A. L. Salazar, 1 ♂, 23.5 × 37.0 mm, ICN-MHN-CR 1385.—Fredonia, Vereda La Cristalina, 1800 m alt.,

8 Jul 2000, leg. L. E. Velásquez, 1 ♂, 28.0 × 44.2 mm, 1 ♀, 36.9 × 61.3 mm, ICN-MHN-CR 1864. (2) Quindío Department. Quimbaya, Inspección La Española, 27 May 1987, leg. uk, 1 ♂, 21.9 × 31.3 mm, CRBMUV 87013. (3) Risaralda Department. Pueblo Rico, 3 km from Pueblo Rico to Santa Cecilia, 1430 m alt., 18 Aug 1987, 2 ♂, 13.0 × 19.1 mm, 10.6 × 15.6 mm, 1 ♀, 13.3 × 20.4 mm, ICN-MHN-CR 0780.—8 km from Pueblo Rico to Villa Claret, Tolda Seca stream, 1550 m alt., 21 Aug 1987, 2 ♂, 17.8 × 27.0 mm, 16.3 × 24.1 mm, 2 ♀, one with carapace broken, 12.7 × 18.6 mm, 2 juveniles, ICN-MHN-CR 0781.—Vereda Zabarraga Piunda, Piunda stream, 730 m alt., 21 Aug 1987, 1 ♀, 28.5 × 45.9 mm, ICN-MHN-CR 0786.—Vereda Ciató, Cristalina stream, 1500 m alt., 20–23 Sep 1991, 7 ♂, 21.7 × 33.1 to 9.5 × 13.2 mm, 3 ♀, 15.8 × 23.2 to 9.1 × 13.7 mm, ICN-MHN-CR 1239, 1240, 1245.—Stream affluent to Negro River, 1600 m alt., 21 Sep 1991, 1 ♂, 12.7 × 18.7 mm, 1 ♀, 14.3 × 21.5 mm, ICN-MHN-CR 1242.—Vereda Los Pueblos, 1500 m alt., 22 Sep 1991, 5 ♂, 25.1 × 39.8 to 12.0 × 17.9 mm, 1 ♀, 9.8 × 14.0 mm, ICN-MHN-CR 1243.—Vereda Palo Blanco, Moravia Farm, 1300 m alt., 23 Sep 1991, 8 ♂, 21.4 × 32.1 to 11.3 × 15.9 mm, 3 ♀, 14.6 × 22.7 to 11.8 × 17.5 mm, ICN-MHN-CR 1247, 1249.—Vereda Ciatocito, 1550 m alt., 24 Sep 1991, 1 ♂, 14.6 × 22.1 mm, 3 ♀, 11.2 × 17.4 to 11.0 × 17.1 mm, ICN-MHN-CR 1251.—Vereda San José, La Palestina Farm, Pueblo Rico-Villa Claret Highway, 1500–1600 m alt., 25, 26 Sep 1991, 14 ♂, 23.0 × 34.7 to 11.2 × 17.0 mm, 7 ♀, 29.5 × 47.3 to 12.2 × 18.9 mm, ICN-MHN-CR 1253, 1254.—Vereda La Selva, La Pava stream, way to Repetidora, 1350 m alt., 27 Sep 1991, 1 ♂, 16.3 × 24.2 mm, 2 juveniles, ICN-MHN-CR 1256.—Vereda Caja de Oro, 1600 m alt., 27 Sep 1991, leg. A. Loaiza, 1 ♂, 15.0 × 22.7 mm, 1 ♀, 13.5 × 20.3 mm, 1 juvenile, ICN-MHN-CR 1258.—Negro River, 1600 m alt., 28 Sep 1991, 1 ♂, 17.4 × 27.0 mm, 5 ♀,

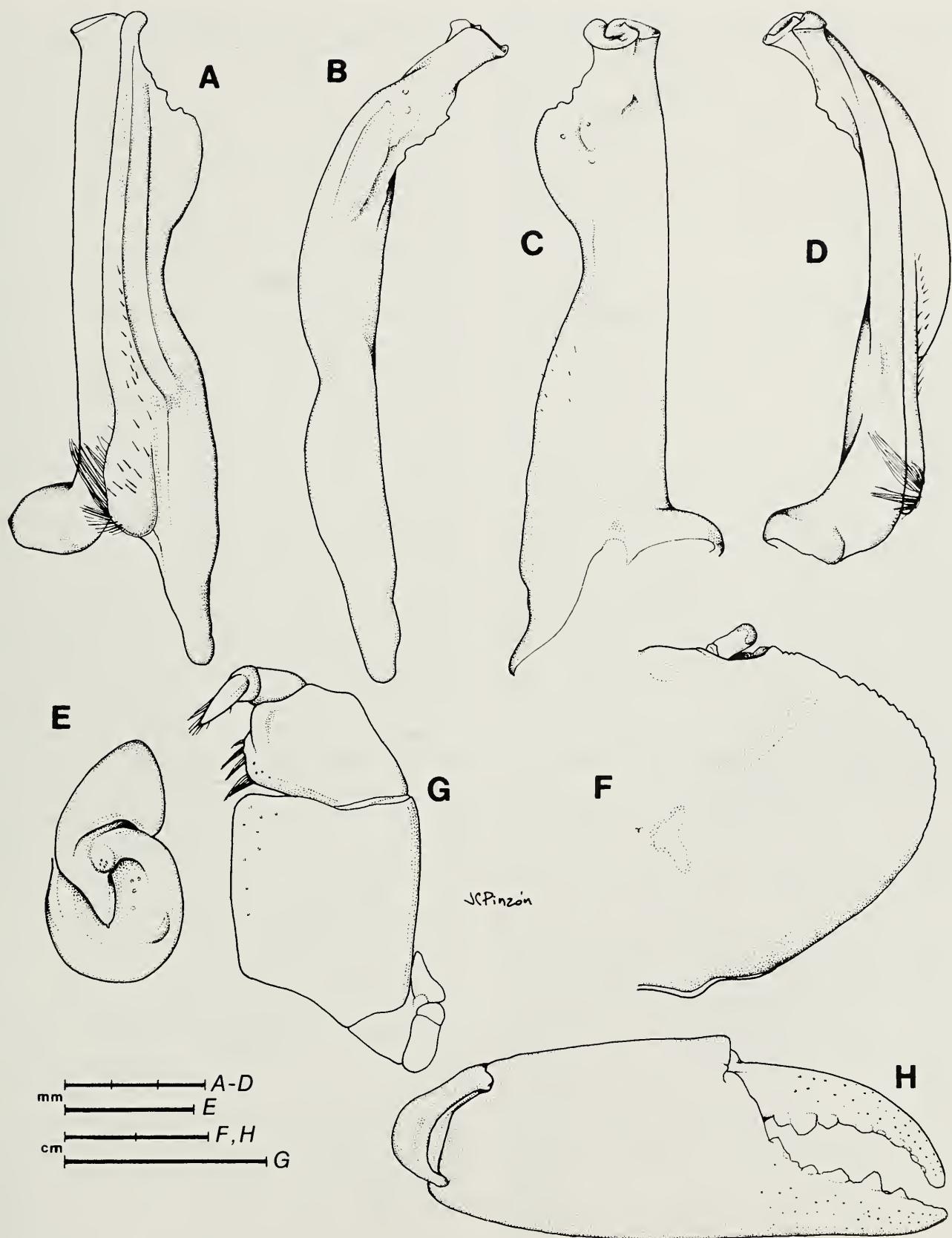


Fig. 6. *Hypolobocera bouvieri monticola* (Zimmer, 1912), male, ICN-MHN-CR 0086: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view.

28.9 × 46.0 to 16.2 × 25.3 mm, ICN-MHN-CR 1260.—La Florida, Vereda La Suiza, stream by “Camino Ecológico”, 1850 m alt., 12 Jun 1989, leg. M. Morales, 1 ♂, 24.0 × 39.0 mm, ICN-MHN-CR 0966.—Mistrató. Corregimiento San Antonio del Chamí. Vereda La Florida, San Antonio del Chamí-Geguadas Highway, 1100 m alt., 30 Mar 1992, 13 ♂, 25.7 × 39.0 to 11.8 × 17.5 mm, 9 ♀, 20.8 × 32.2 to 13.0 × 19.8 mm, ICN-MHN-CR 1268.—Vereda La Palestina, San Antonio del Chamí-Mistrató Highway, 1150 m alt., 30 Mar 1992, 3 ♂, 20.0 × 31.8 to 11.0 × 15.9 mm, 4 ♀, 15.1 × 22.7 to 14.4 × 21.9 mm, ICN-MHN-CR 1269.—Vereda Arcacay, 900 m alt., 1 Apr 1992, 3 ♂, 14.0 × 21.8 to 10.9 × 16.1 mm, 2 ♀, 17.2 × 26.5 mm, 13.5 × 20.2 mm, ICN-MHN-CR 1270.—Vereda Empalado, 1800 m alt., 1 Apr 1992, 1 ♀, cl 34.8 mm, cb 55.2 mm (ICN-MHN-CR 1271).—Vereda Mampay, Sutú stream, 1750 m alt., 3 Apr 1992, 7 ♂, 19.5 × 29.2 to 12.5 × 18.6 mm, 3 ♀, 17.7 × 26.3 to 11.5 × 17.2 mm, ICN-MHN-CR 1272.—Vereda La Florida, 1350 m alt., 4 Apr 1992, 10 ♂, 24.5 × 37.4 to 12.6 × 19.5 mm, 13 ♀, 31.0 × 47.0 to 12.0 × 18.0 mm, ICN-MHN-CR 1273.—San Antonio stream, 800 m alt., 4 Apr 1992, 1 ♂, 33.5 × 51.6 mm, 1 ♀, 30.3 × 47.6 mm, ICN-MHN-CR 1274.—Vereda La Gabriela, Sutú stream, 1700 m alt., 6 Apr 1992, 1 ♂, 15.8 × 23.5 mm, 1 ♀, carapace broken, ICN-MHN-CR 1275.—Vereda Puerto de Oro, Carbones stream, 1080 m alt., 22 May 1992, leg. R. Sánchez, 1 ♀, 19.8 × 31.6 mm, ICN-MHN-CR 1778. (4) Tolima Department, Chaparral. Vereda El Linday, La Miel stream, 900 m alt., 26 Jul 1981, 6 ♂, 37.7 × 59.7 to 21.5 × 33.9 mm, 8 ♀, 38.0 × 60.4 to 12.1 × 18.6 mm, ICN-MHN-CR 0069, 0070, 0071, 0072, 0073, 0074, 0075, 0076.—Vereda El Linday, Agua Dulce stream, 850–900 m alt., 22 May 1984, 15 Jul 1995, 4 ♂, 45.7 × 73.6 to 23.4 × 36.7 mm, 2 ♀, 40.2 × 64.1 mm, 31.8 × 51.9 mm, ICN-MHN-CR 0570, 1457.—Tuluní stream, 920 m alt., 24 Aug 1982, leg. D. H. Campos, 1

♂, 51.4 × 86.0 mm, ICN-MHN-CR 0086.—Corregimiento El Limón, Lake in Camacho Angarita Farm, 900 m alt., 20 Mar 1983, 1 ♂, 45.1 × 75.6 mm, ICN-MHN-CR 0139.—Corregimiento El Limón, Vereda Betania, 900 m alt., 15 Jul 1983, 11 Jan 1988, 11 ♂, 38.7 × 59.5 to 13.8 × 20.7 mm, 9 ♀, 59.5 × 100.9 to 16.8 × 26.9 mm, ICN-MHN-CR 0506, 0507, 0509, 0845.—Corregimiento El Limón, Vereda Buenosaires, Miraflores Farm, 920 m alt., 17 Jul 1983, 30 Mar 1994, 6 ♂, 27.8 × 43.0 to 10.3 × 15.5 mm, 5 ♀, 26.3 × 40.7 to 21.0 × 32.5 mm, ICN-MHN-CR 0510, 0511, 0512, 1311.—Vereda Maito, Santa Ana stream, 950 m alt., 7 Jan 1985, 1 ♂, 25.8 × 41.0 mm, ICN-MHN-CR 0606.—Vereda Potrerito de Aguayo, 900 m alt., 15 May 1988, 20 Jul 1989, leg. D. Campos, 2 ♂, 47.4 × 79.4 mm, 38.1 × 61.0 mm, ICN-MHN-CR 0872, 0976.—Corregimiento El Limón, Vereda Betania, La Angostura, 1200–1300 m alt., 16–21 Oct 1993, 4 ♂, 45.0 × 73.7 to 20.3 × 31.6 mm, 4 ♀, 34.2 × 52.9 to 13.9 × 20.8 mm, ICN-MHN-CR 1298, 1302, 1305.—Corregimiento El Limón, Vereda Chicalá, 1100 m alt., 17 Oct 1993, 1 ♂, 21.8 × 33.8 mm, 2 ♀, 24.0 × 37.1 mm, + another with carapace broken, ICN-MHN-CR 1300.—Corregimiento El Limón, Vereda Providencia, 1000 m alt., 19, 20 Oct 1993, 9 ♂, 24.7 × 38.2 to 13.7 × 20.5 mm, 7 ♀, 29.3 × 46.7 mm to 15.5 × 22.5 mm, ICN-MHN-CR 1303, 1304.—Rioblanco, Blanca stream, 900 m alt., 22 May 1984, 1 ♀, 36.9 × 59.0 mm, ICN-MHN-CR 0568.—Purificación, Vereda San Antonio, El Consuelo stream, 300 m alt., 22 Aug 1997, leg. A. Fajardo, 1 ♀, 51.8 × 84.9 mm, ICN-MHN-CR 1667. (5) Valle del Cauca Department. Bolívar, Vereda Santa Marta, Aguas Lindas stream, 26 Feb 1983, leg. uk, 2 ♂, cl 20.3 × 31.1 mm, 14.7 × 21.6 mm, 2 ♀, cl 19.2 × 29.5 mm, 16.5 × 25.2 mm, CRBMUV 83082.—Bolívar, El Manzano Farm, 25 Jan 1984, leg. J. Restrepo, 1 ♂, 30.1 × 47.8 mm, CRBMUV 84083.—Sevilla, Inspección Morro Azul, La Miranda Farm, 28 Mar 1985, leg. F. Re-

cio, 2 ♂, 20.2 × 31.0 mm, 14.6 × 21.7 mm, 2 ♀, 19.0 × 29.3 mm, 16.1 × 25.0 mm, CRBMUV 85134.

Diagnosis.—Chelae of male with small, rounded or irregularly shaped tubercle on external base of mobile fingers, and swelling on external base of fixed fingers (Fig. 6H). First male gonopod with caudal ridge long, straight; ending in narrow ridge beyond lateral lobe (Fig. 6A). Lateral lobe small, subtriangular, usually with crenulations on distal margin. Cephalic surface with transverse crest on distal half and tuberculated ridge parallel to lateral lobe (Fig. 6A–D). Apex outline oval, borders raised; prominent cephalic papilla and auxiliary rounded papilla near spermatic channel. Mesocaudal projection of spermatic channel terminated in blunt papilla, with distal spinule. Mesial lobe subtriangular (Fig. 6C–E). Third maxilliped with exognath 0.20–0.30 times length of ischium (Fig. 6G).

Remarks.—This subspecies has a trans-basin distribution covering the Central and Western Cordilleras in the mid-Magdalena and Cauca River basins. Females of this subspecies produced a large number of eggs, and thus have a great potential to colonize new habitats.

Hypolobocera bouvieri stenolobata

Rodríguez, 1980

Fig. 7A–H

Hypolobocera bouvieri stenolobata Rodríguez, 1980:891.—Rodríguez, 1982a: 58.—Rodríguez, 1994:299.

Material examined.—Colombia, Huila Department, Pitalito. Oritoguaza stream, 1200 m alt., 28 Aug 1986, 1 ♂, 33.4 × 52.9 mm, 1 ♀, 44.2 × 71.4 mm, ICN-MHN-CR 0656, 0657.—Vereda La Palma, stream near coffee plantation, 1200 m alt., 29 Aug 1986, 2 ♀, 43.1 × 69.4 mm, 38.3 × 60.7 mm, ICN-MHN-CR 0658, 0659.—Vereda Calamó, Yamboró Farm, 1175 m alt., 29 Aug 1986, 4 ♂, 34.9 × 55.3 to 15.0 × 22.8 mm, 1 ♀, 24.8 × 38.6 mm, ICN-MHN-CR 0661.—Gigante, Vereda Bajo Corozal, Cat-

alina stream, 1200 m alt., 30 Aug 1986, 5 ♂, cl 27.9 × 45.5 to 10.5 × 15.8 mm, 1 ♀, 28.2 × 45.6 mm, ICN-MHN-CR 0662, 0663.—Rivera, 1000 m alt., 15 Jan 1988, 1 ♀, 43.1 × 69.4 mm, ICN-MHN-CR 0846.

Diagnosis.—Chelae of male with irregular shape tubercle on external base of mobile fingers, and swelling on external base of fixed fingers (Fig. 7H). First male gonopod with caudal ridge long, straight, recurved proximally; ending in narrow ridge beyond lateral lobe (Fig. 7A). Lateral lobe small, semicircular with crenulations on distal margin. Cephalic surface with transverse crest on distal half and tuberculated ridge parallel to lateral lobe (Fig. 7A–D). Apex outline oval in distal view; prominent cephalic papilla and auxiliary rounded papilla near spermatic channel. Mesocaudal projection of spermatic channel terminated in blunt papilla. Mesial lobe subtriangular (Fig. 7C–E). Third maxilliped with exognath 0.26–0.30 times length of ischium (Fig. 7G).

Remarks.—This subspecies is distributed in the Eastern Cordillera, in the upper reaches of the Magdalena River, which drains into the Caribbean Sea.

Hypolobocera buenaventurensis

(Rathbun, 1905)

Pseudothelphusa buenaventurensis Rathbun, 1905:307, fig. 98.—Coifmann, 1939:107.—Pretzmann, 1965:10.

Hypolobocera (Hypolobocera) buenaventurensis Pretzmann, 1971:17.—Pretzmann, 1972:48–49.

Hypolobocera buenaventurensis Rathbun, 1905).—Rodríguez, 1982a:190.

?*Hypolobocera buenaventurensis*.—Prahl 1985:44.—Prahl 1987:61.—Prahl, 1988: 171–172.

Material.—Colombia. Valle del Cauca Department, Buenaventura, 2 ♀, syntypes, 22.1 × 35.7 mm, 21.7 × 33.7 mm, MPB 3075.—Bajo Anchicayá, Anchicayá River, 16 Oct 1983, leg. uk, 1 ♂, 25.0 × 36.0 mm, 043 ADT-CRBMUV.

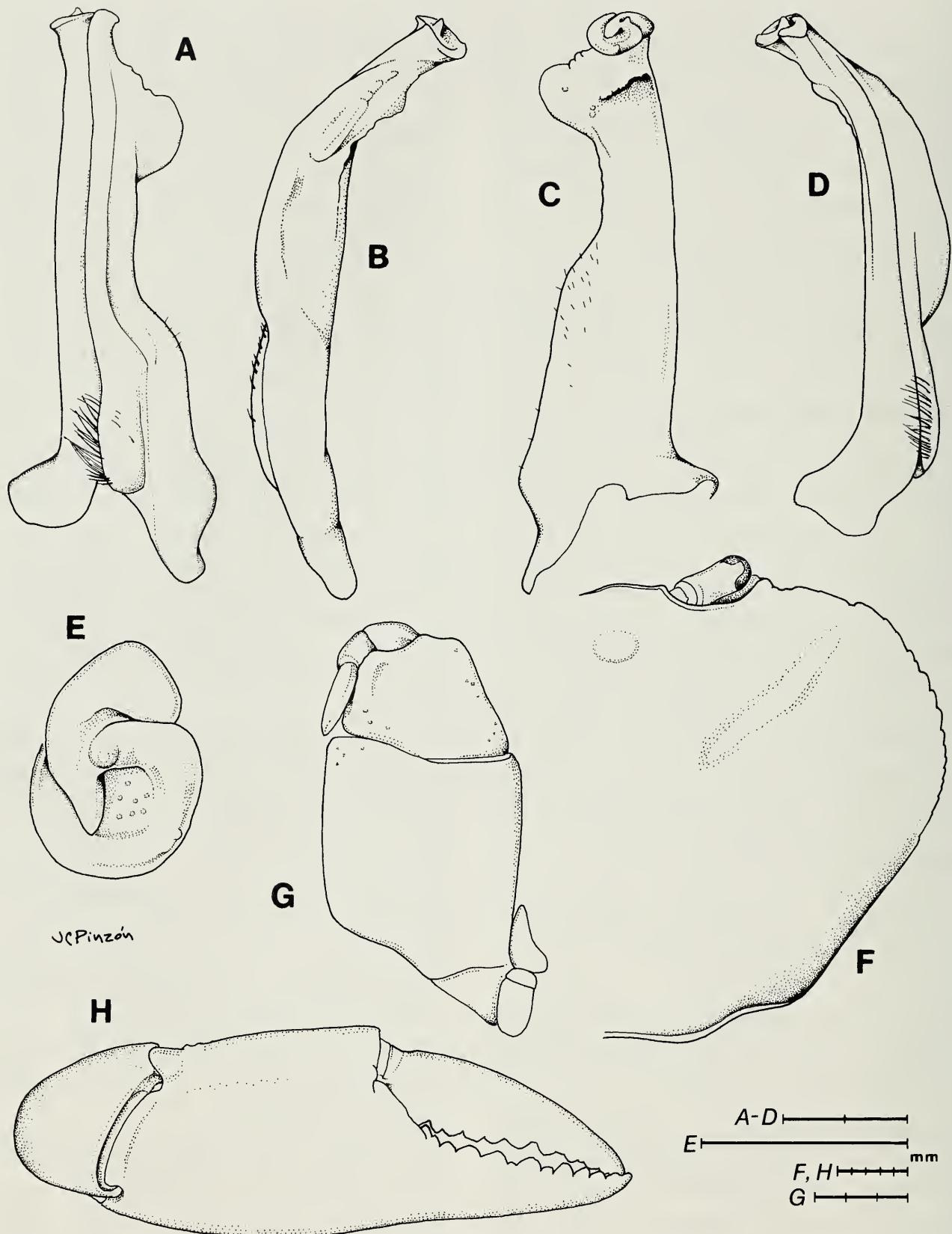


Fig. 7. *Hypolobocera bouvieri stenolobata* Rodríguez, 1980, male, ICN-MHN-CR 0656: A, left first gono-pod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view.

Remarks.—This species was described from only two female syntypes from Buenaventura. Rodríguez (1982a), however, established that *Hypolobocera buenaventurensis* resembles *H. beieri*, based on the carapace, third maxilliped shape, length of exognath, and shape of branchial efferent channel. Prahl (1987) reported a male (25.0 × 36.0 mm), and described the carapace and first male gonopod. Prahl's male specimen could not be found at CRBMUV, so its identity cannot be confirmed.

Hypolobocera cajambrensis Prahl, 1988

Fig. 8A–H

Hypolobocera cajambrensis Prahl, 1988:

177, figs. 7, 8.

Hypolobocera cajambrensis.—Rodríguez, 1992:183.

Material examined.—Colombia. Valle del Cauca Department. Cajambre River, 700 m alt., 25 Aug 1983, leg. R. Ríos, 1 ♂ holotype, 15.0 × 24.0 mm, 041-0 ADT-CRBMUV.—Same data, 1 ♂ paratype, USNM 210727.—Cajambre River, 9 Aug 1983, 1 ♂ juvenile, 9.3 × 15.2 mm, leg. uk, 3 ♀, 13.5 × 22.3 to 10.5 × 17.3 mm, CRBMUV 83084.—Cajambre River, 25 Aug 1983, leg. uk, 1 ♀, 15.6 × 25.4 mm, CRBMUV 83085.—Buenaventura, Pogodó stream, affluent of Cajambre River, 50 m alt., 29 Apr 1999, leg. E. Flórez, 1 ♂, 13.6 × 23.7 mm, ICN-MHN-CR 1876.

Cauca Department, Timbiquí, Saija River, 100 m alt., 2°50'N, 77°30'W, 3 Nov 1971, leg. B. Malkin and A. Granja, 1 ♂, 24.9 × 47.6 mm, FMNH 3675.

Diagnosis.—Carapace with front extremely wide, approximately half of carapace width (Fig. 8F). Chelae of male with irregularly shaped tubercle on external base of mobile fingers, and swelling on external base of fixed fingers (Fig. 8H). First male gonopod with caudal ridge long, fusiform; ending in narrow ridge beyond lateral lobe (Fig. 8A). Lateral lobe triangular, and auxiliary lobe parallel to lateral lobe on lateral side (Fig. 8A–C). Apex outline slightly oval

in distal view; caudolateral border transverse and expanded. Mesocaudal projection of spermatic channel terminating in rounded papilla. Mesial lobe projected on cephalic surface as a wide, semicircular lobe (Fig. 8B–D). Third maxilliped with exognath approximately 0.30 times length of ischium (Fig. 8G).

Remarks.—This species can be easily distinguished from others within the genus by the presence on the first male gonopod of an auxiliary lobe parallel to the lateral lobe.

Hypolobocera chocoensis Rodríguez, 1980

Fig. 9A–I

Hypolobocera Hypolobocera dubia.—Pretzmann, 1972:48, figs. 224–226, 230–232, 236, 237.

Hypolobocera chocoensis Rodríguez, 1980: 891.—Rodríguez, 1982a:59, figs. 19, 21, 31.—Prahl, 1988:177, fig. 9.—Rodríguez, 1994:300.

Material examined.—Colombia, Chocó Department. Guntas, Tamaná River, leg. uk, ♂ holotype, 18.8 × 31.5 mm, BM 1910.3.4.3–4.—Same data, 1 ♀ paratype, 18.2 × 26.9 mm, BM 1910.3.4.3–4.—Condoto, leg. H. G. F. Spurrel, 2 ♂, 20.4 × 32.4 mm, 19.9 × 32.2 mm, BM 1913.10.28.1–3.—Mountains of upper San Juan River, Chocó jungle, nearest village Playa de Oro, 28 Mar 1962, leg. M. Latham, 10 ♂, 22.8 × 36.7 to 23.8 × 39.7 mm, USNM 240102.—Condoto. 23 Jul 1985, leg. uk, 2 ♂, 21.0 × 28.0 mm, 18.5 × 27.0 mm, 045–0, 045–1 ADT-CRBMUV.—Lloró, Granja Codechocó, left margin of Atrato River, 50 m alt., 23 Mar 1988, leg. O. Reyes, 1 ♂, 16.0 × 27.1 mm, ICN-MHN-CR 0851.—Pizarro, Bajo Baudó, Torreidó stream, 20 m alt., leg. R. Sánchez. 30 Aug 1990, 2 ♂, cl 19.2 × 31.7 mm, 16.5 × 27.9 mm, 1 ♀, 23.2 × 40.0 mm, ICN-MHN-CR 1201.

Diagnosis.—Chelae of male lacking tubercles on external base of mobile and fixed fingers (Fig. 9I). First male gonopod with caudal ridge strong, long, straight; ending

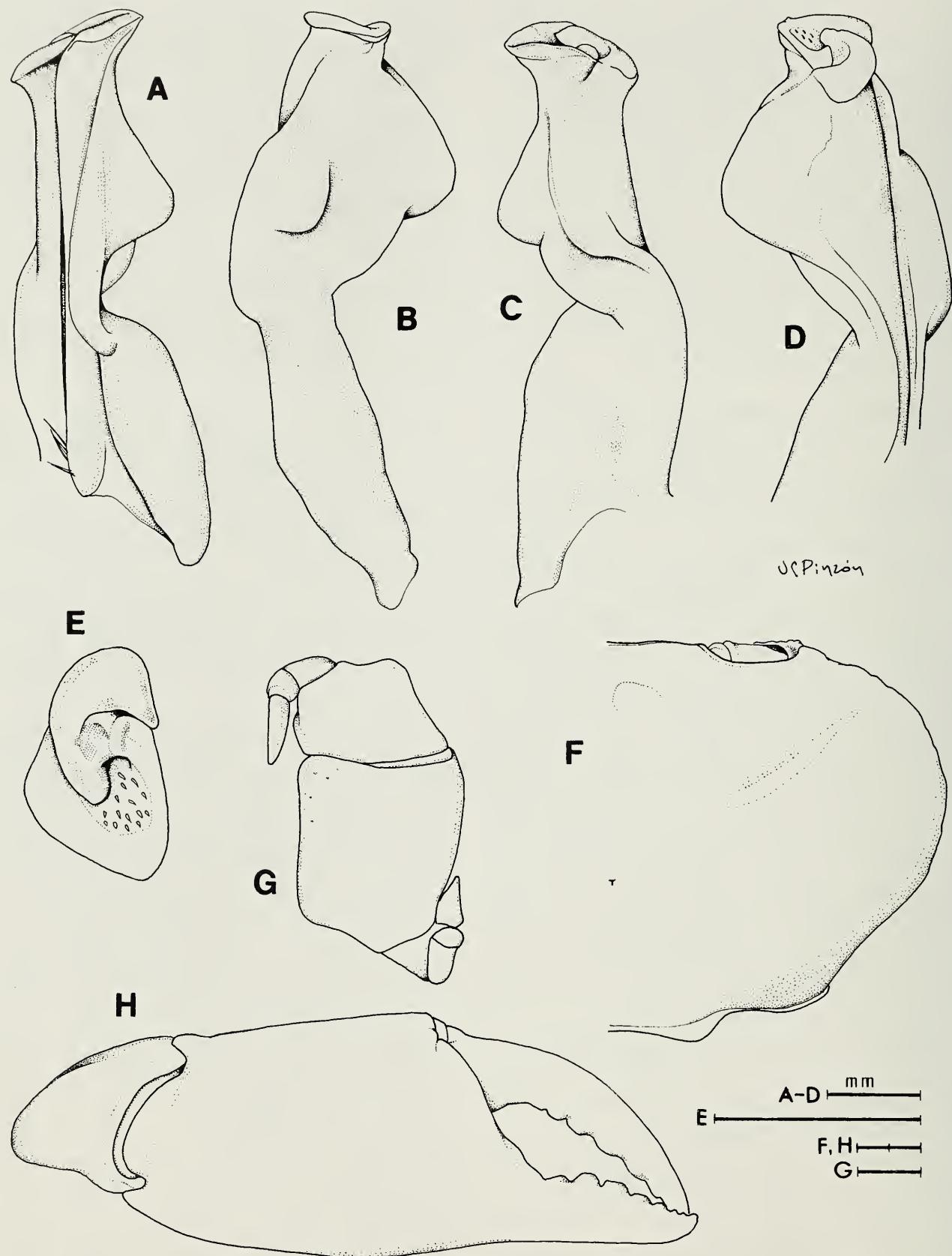


Fig. 8. *Hypolobocera cajambrensis* Prahl, 1988, male, ICN-MHN-CR 1876: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view.

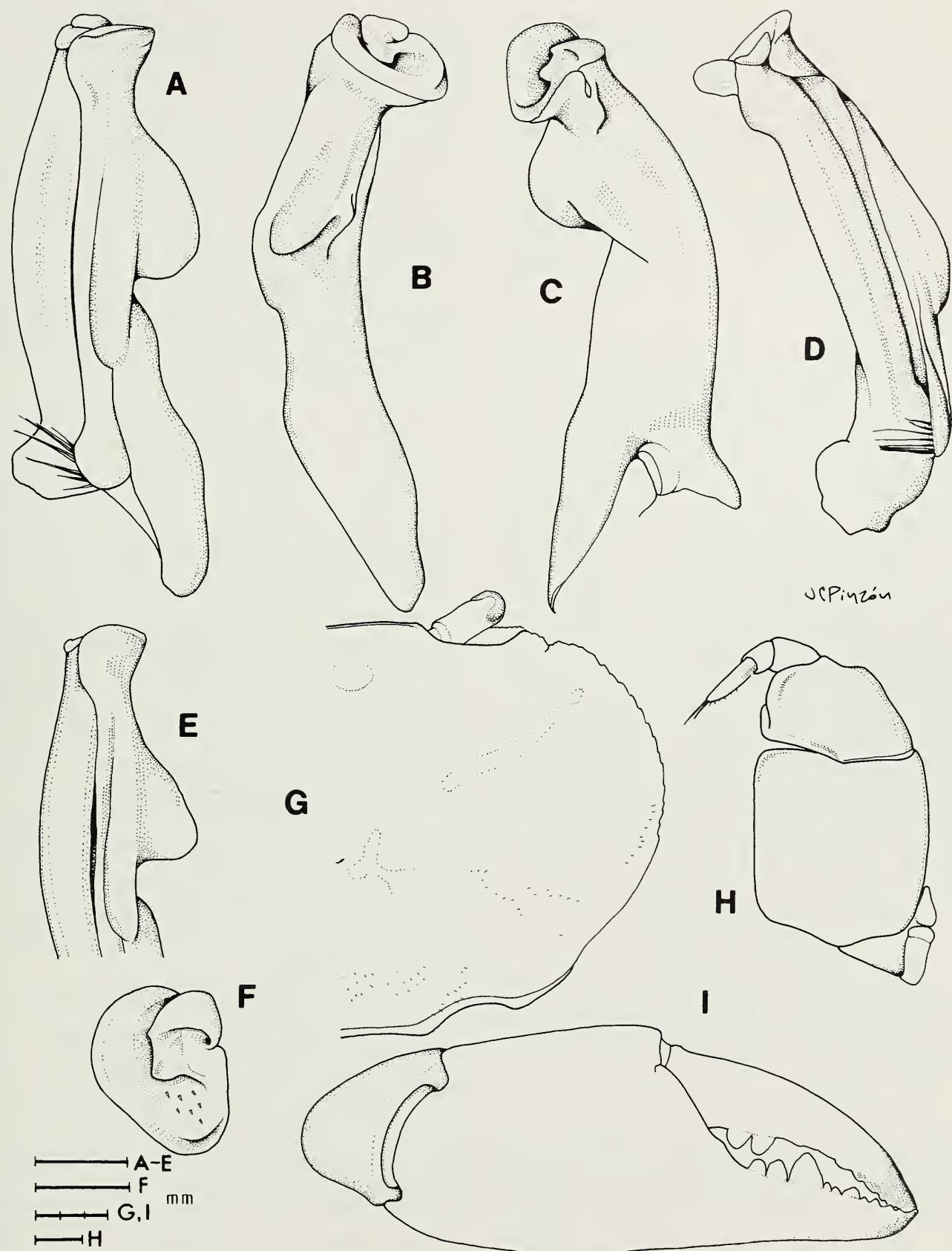


Fig. 9. *Hypolobocera choocoensis* Rodríguez, 1980, male, ICN-MHN-CR 1201: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; F, same, apex, distal view; G, right side of carapace, dorsal view; H, left third maxilliped, external view; I, right chela, external view. Male, ICN-MHN-CR 0851: E, left first gonopod, caudal view.

in narrow ridge beyond lateral lobe (Fig. 9A, C). Lateral lobe triangular, with proximal margin either rounded, or straight (Fig. 9A, C, E). Apex outline slightly rounded in distal view, expanded mesocaudally into rounded projection. Mesocaudal projection of spermatic channel terminating in semi-acute papilla. Mesial lobe semicircular (Fig. 9B, F). Third maxilliped with exognath 0.20–0.25 times length of ischium (Fig. 9H).

Remarks.—This species is most similar to *Hypolobocera lloroensis* Campos, 1989. The two can be differentiated by features of the carapace and first male gonopod. The anterolateral border of the carapace in *H. lloroensis* (Fig. 14F) has a deep depression behind the external orbital angle, followed by another deep depression at the level of the cervical groove. In contrast, *H. chocoensis* has the anterolateral border of the carapace with a deep depression behind the external orbital angle, but the border is not continuous with the margin of the depression (Fig. 9G). The caudal edge of the apex of the first male gonopod is transverse in caudal view in *Hypolobocera lloroensis* (Fig. 15A), whereas it is rounded and expanded in *H. chocoensis*.

Hypolobocera dentata Prahl, 1987

Fig. 10A–G

Hypolobocera dentata 1987:93–95, fig. 1A–E.—Prahl, 1988:180, fig. 12.

Hypolobocera dentata.—Rodríguez, 1992: 183.

Material examined.—Colombia, Valle del Cauca Department. Bolívar, El Manzano, near Betania, 1600 m alt., 28 Jan 1984, leg. E. Velasco, ♂ holotype, 15.6 × 24.0 mm, 071 ADT-CRBMUV.—Same data, 1 ♀ paratype, 17.0 × 25.7 mm, 072 ADT-CRBMUV.

Diagnosis.—First male gonopod with caudal ridge long, sinuous, recurved proximally; ending in narrow ridge beyond lateral lobe (Fig. 10A). Lateral lobe subtriangular, with tubercles on distal external margin,

and on cephalic surface (Fig. 10A–D). Apex outline oval in distal view, expanded caudocephalically into rounded projection; laterocephalic border toothed. Mesocaudal projection of spermatic channel terminated in rounded papilla. Mesial lobe slightly semicircular (Fig. 10E). Third maxilliped with exognath approximately 0.40 times length of ischium (Fig. 10G).

Remarks.—This species differs from the others in the genus in having a toothed laterocephalic border in the apex of the first male gonopod.

Hypolobocera emberarum Campos & Rodríguez, 1995
Fig. 11A–H

Hypolobocera emberarum Campos & Rodríguez, 1995:652, Figs. 3, 4.

Material examined.—Colombia. Chocó Department. El Carmen de Atrato, Vereda El Veinte, 2500 m alt., 30 May 1994, leg. I. D. Vélez, ♂ holotype, 14.2 × 23.8 mm, ICN-MHN-CR 1358.—Same data, 2 ♂ paratypes, 13.1 × 22.0 mm, 13.0 × 21.8 mm, 3 ♀ paratypes, 13.4 × 22.6 to 12.7 × 21.4 mm, ICN-MHN-CR 1359.—Antioquia Department. Urrao, Valle de Pérdidas, 1800 m alt., 3 Sep 1994, leg. P. Duque, 3 ♂, 14.1 × 23.8 to 10.9 × 18.3 mm, 3 ♀, 14.0 × 23.5 to 12.7 × 21.4 mm 9 juveniles, ICN-MHN-CR 1383.

Diagnosis.—Carapace lateral sides conspicuously pubescent in larger specimens (Fig. 11F). Chelae of male lacking tubercles on external base of mobile and fixed fingers (Fig. 11H). First male gonopod with caudal ridge long, fusiform; ending in narrow ridge beyond lateral lobe (Fig. 11A, B). Lateral lobe prominent, subtriangular, hatchet shaped, wide proximally, extending near apex of gonopod and forming deep notch distally; caudal face excavated, covered partially with spinules (Fig. 11A–C). Apex outline oblong in distal view, caudocephalic expanded into elongated projection. Mesocaudal projection of spermatic channel terminated in rounded papilla. Me-

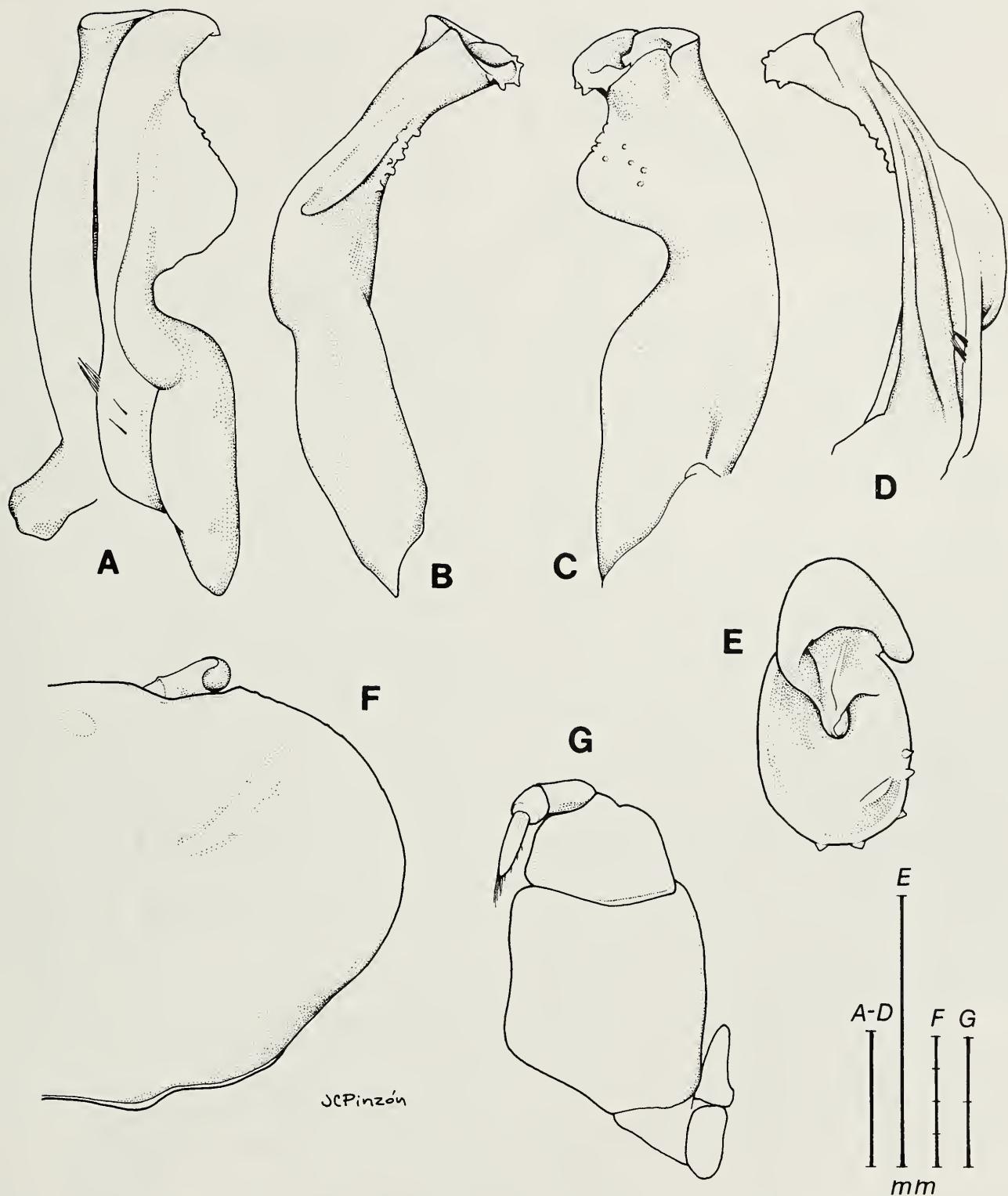


Fig. 10. *Hypolobocera dentata* Prahl, 1987, male, CRBMUV 84077: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view.

sial lobe subtriangular (Fig. 11E). Third maxilliped with exognath approximately 0.20 times length of ischium (Fig. 11G).

Remarks.—The shape of the lateral lobe of the first male gonopod of this species

resembles that of *Hypolobocera chocoensis* Rodríguez, 1980 (Fig. 9A). However, the lateral lobe of *H. chocoensis* does not extend near the apex, and lacks a distal notch as seen in *H. emberarum*.

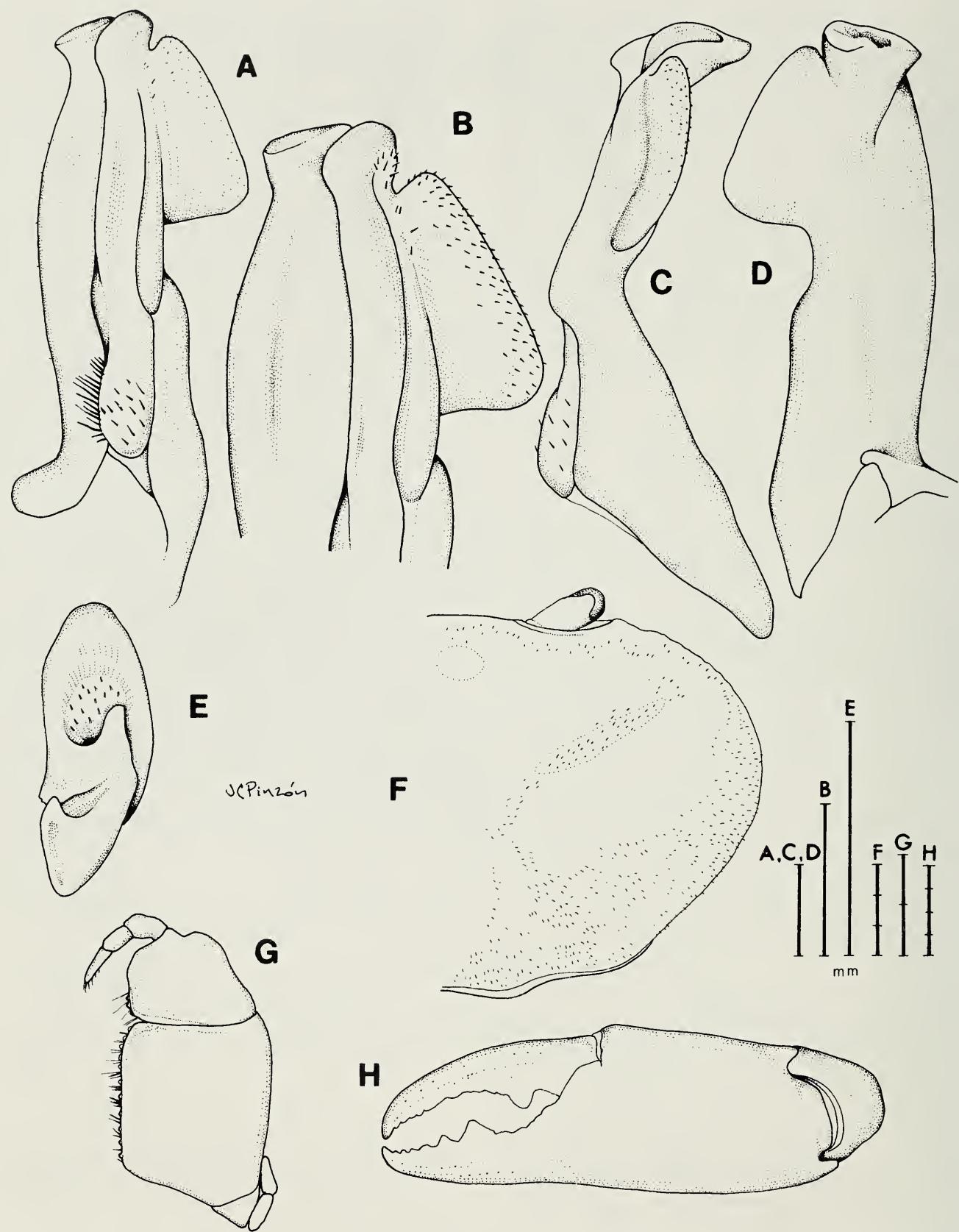


Fig. 11. *Hypolobocera emberarum* Campos & Rodríguez, 1995, male holotype, ICN-MHN-CR 1358: A, left first gonopod, caudal view; B, same, lateral lobe, caudal view; C, same, lateral view; D, same, cephalic view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, left chela, external view.

Hypolobocera gorgonensis Prahl, 1983
Fig. 12A–H

Hypolobocera gorgonensis Prahl, 1983: 106, fig. 1.—Prahl, 1988:181, fig. 13.
Hypolobocera gorgonensis.—Rodríguez, 1992:183.—Rodríguez et al., 2002:7.

Material examined.—Colombia, Cauca Department, Gorgona Island. Marranera stream, 22 May 1979, leg. uk, ♂ holotype, 49.3 × 73.4 mm, 013 ADT-CRBMUV.—El Yucal, La Esperanza, leg. uk, 1 ♀, 53.2 × 80.0 mm, 012 ADT-CRBMUV.—20 May 1979, leg. uk, 3 ♀, 50.3 × 82.1 to 31.7 × 49.5 mm, CRBMUV 79055.—El Azufral, 12 Nov 1982, leg. uk, 1 ♀, 55.6 × 89.2 mm, CRBMUV 82055 (027 ADT-CRBMUV).—3 Nov 1989, leg. H. von Prahl, 1 ♂, 44.0 × 72.5 mm, CRBMUV 89023.—26 Aug 1984, leg. uk, 1 ♀, 8.3 × 13.1 mm, CRBMUV 84072.—26 Aug 1984, leg. uk, 1 ♀, carapace broken, CRBMUV 84073.—22 Aug 1980, leg. H. von Prahl, 1 ♂, 50.6 × 83.3 mm, TU 6303.—Pacific, 1 Feb 1962, leg. F. Medem, 2 ♂, 50.2 × 81.2 mm, 43.2 × 69.9 mm, 1 ♀, cl 47.2 mm, cb 76.4 mm, FMNH 3687.—29 Apr 1985, leg. J. M. Rengifo, 3 ♂, 47.9 × 79.1 to 43.9 × 71.2 mm, ICN-MHN-CR 0612.

Diagnosis.—Chelae of male with small tubercle on external base of mobile fingers, and swelling on external base of fixed fingers (Fig. 12H). First male gonopod with caudal ridge strong, straight; ending in narrow ridge distally. Mesial margin with rows of conspicuous setae (Fig. 12A). Lateral lobe triangular, increasing in width distally; distal external margin rounded (Fig. 12A, C). Apex outline elongated along mesolateral axis in distal view; caudocephalic border rounded. Mesocaudal projection of spermatic channel terminating in rounded papilla. Mesial lobe elongated and subtriangular (Fig. 12E). Third maxilliped with exognath approximately 0.35 times length of ischium (Fig. 12G).

Remarks.—This species is considered en-

demic to Gorgona, an island with a surface of 2400 ha.

Hypolobocera kamsarum Campos & Rodríguez, 1995
Fig. 13A–H

Hypolobocera kamsarum Campos & Rodríguez, 1995:649, Figs. 1, 2.

Material examined.—Colombia. Putumayo Department, Mocoa, Vereda Alto Campucana, 1350 m alt., 2 Jun 1994, leg. O. V. Castaño, ♂ holotype, 14.0 × 23.7 mm, ICN-MHN-CR 1349.—Same data, 1 ♂ paratype, 13.4 × 21.8 mm, 1 ♀ paratype, 14.6 × 24.8 mm, 2 juveniles, ICN-MHN-CR 1350.

Diagnosis.—Chelae of male lacking tubercles on external base of mobile and fixed fingers (Fig. 13H). First male gonopod with caudal ridge long, concave; almost reaching apex (Fig. 13A). Lateral lobe small, transverse, displaced towards cephalic side, evenly rounded in lateral view, placed far from apex (Fig. 13A–D). Apex outline oval in distal view, with rounded expansion directed distally. Mesocaudal projection of spermatic channel terminating in rounded papilla. Mesial border projected proximally, forming strong triangular mesial lobe (Fig. 13C, E). Third maxilliped with exognath relatively long, approximately 0.60 times length of ischium (Fig. 13G).

Remarks.—This species differs from the others in the genus in having the mesial border projected proximally, forming a strong triangular mesial lobe (Fig. 13C, E).

Hypolobocera lloroensis Campos, 1989
Fig. 14A–G

Hypolobocera lloroensis Campos, 1989: 143, fig. 1.

Hypolobocera lloroensis.—Rodríguez, 1992:183.—Rodríguez et al., 2002:7.

Hypolobocera chocoensis.—Prahl, 1988: 177, 179.

Material examined.—Colombia, Chocó Department. Lloró, Vereda Peñalosa, Gran-

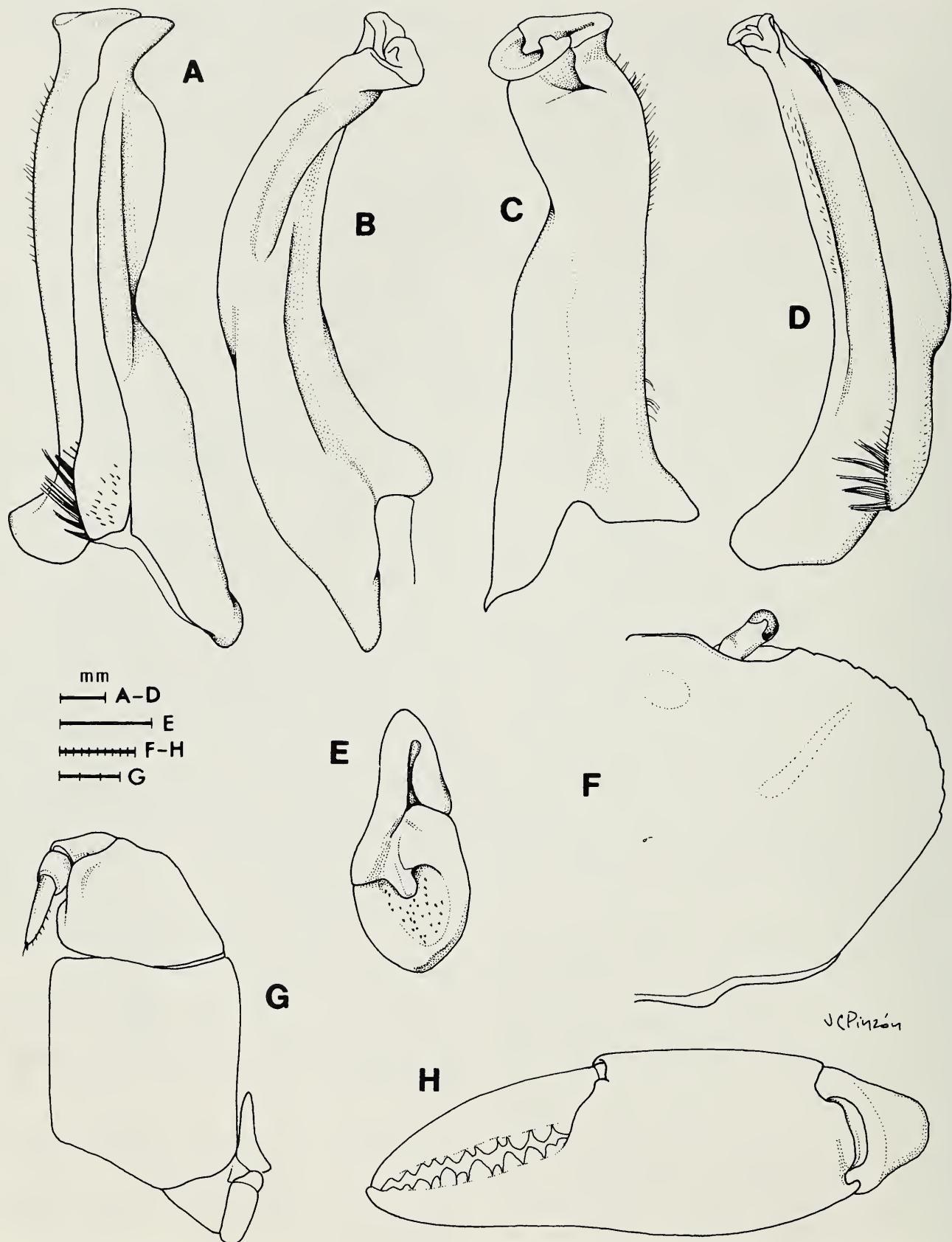


Fig. 12. *Hypolobocera gorgonensis* Prahl 1983, male, ICN-MHN-CR 0612: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, left chela, external view.

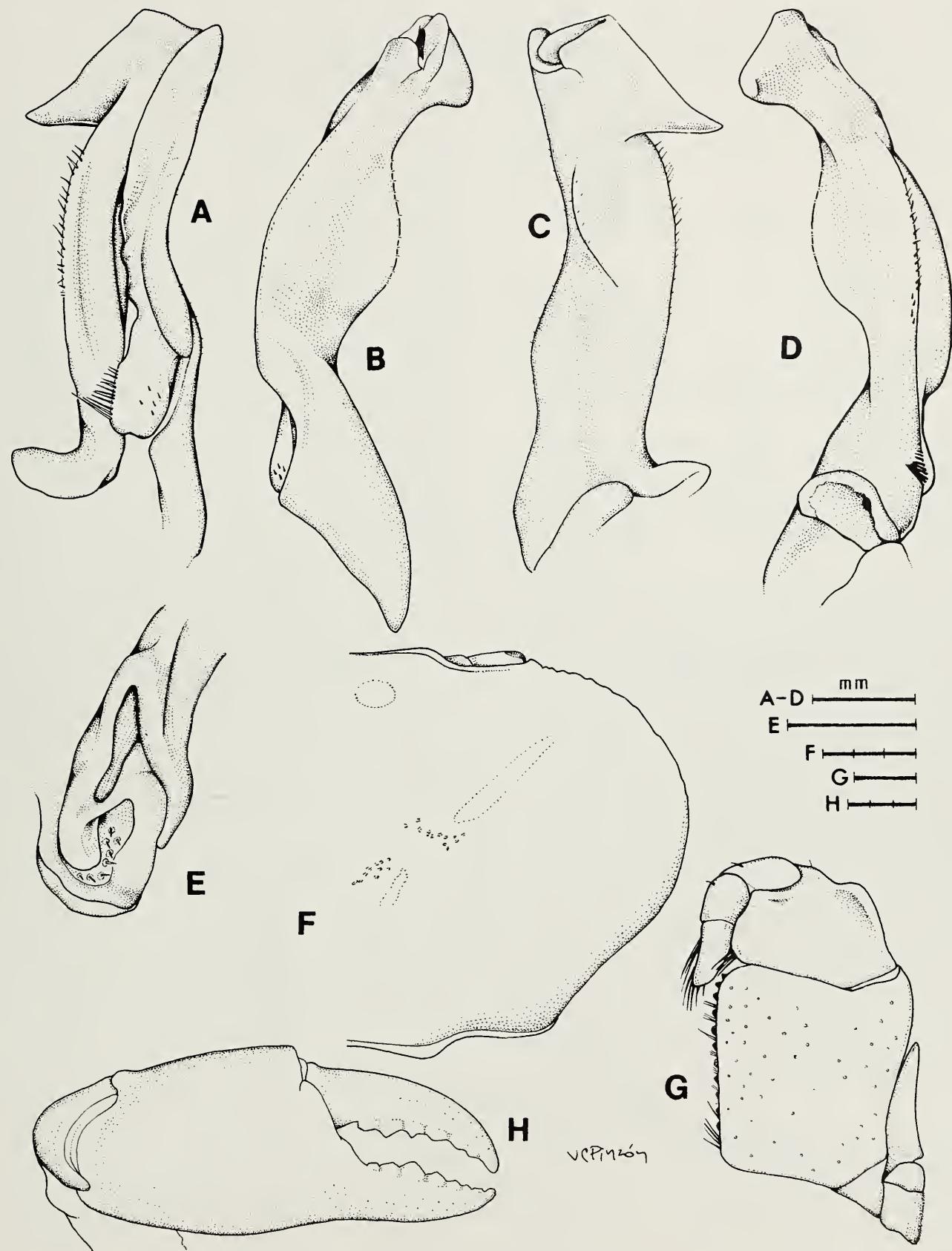


Fig. 13. *Hypolobocera kansarum* Campos & Rodríguez, 1995, male holotype, ICN-MHN-CR 1349; A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view.

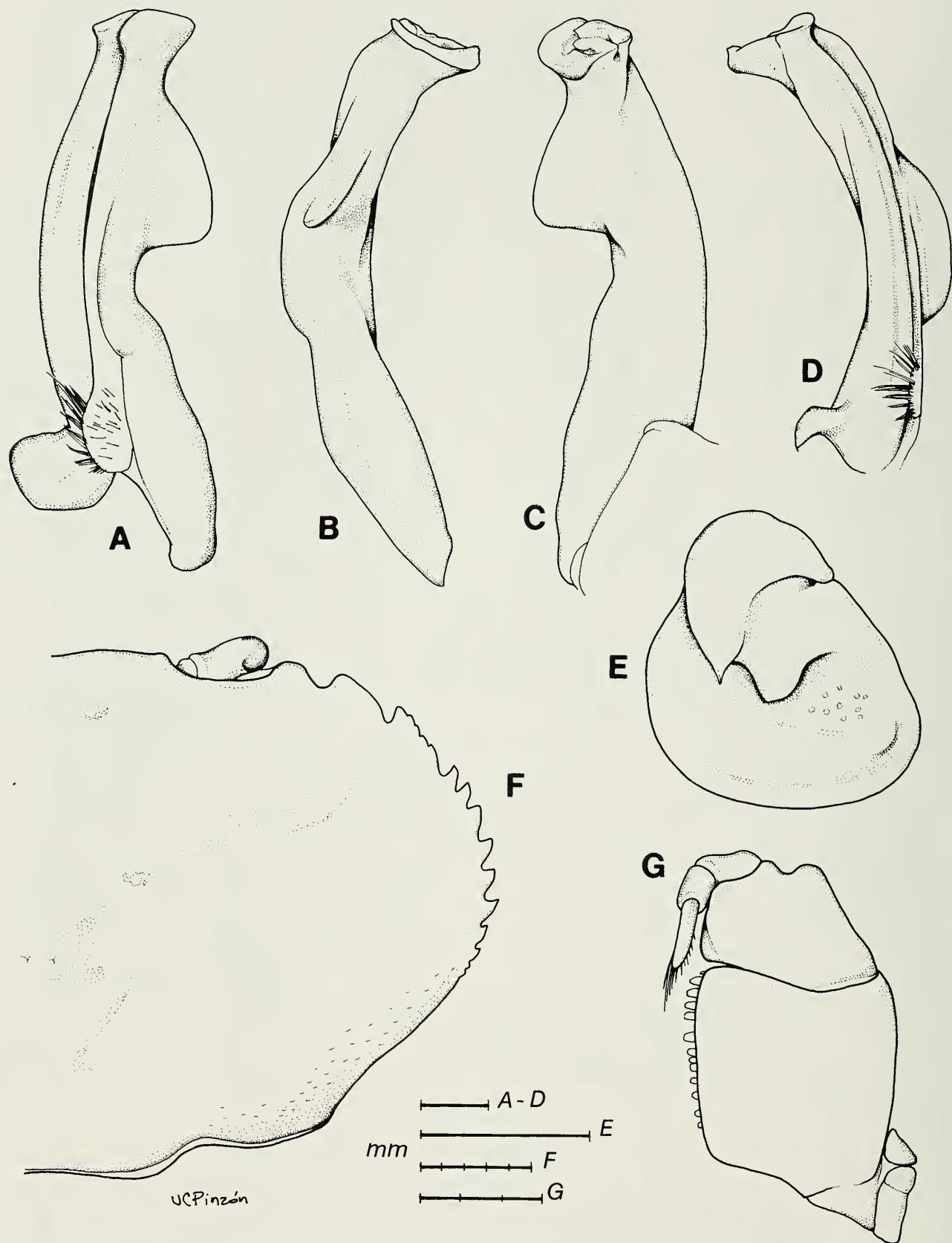


Fig. 14. *Hypolobocera lloroensis* Campos 1989, male, ICN-MHN-CR 1386: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view.

ja Experimental CEMA, Universidad de Chocó, La Lana, 50 m alt., 22 Mar 1988, leg. M. C. Ardila, M holotype, 17.8 × 30.3 mm, 1 ♂ paratype, 11.0 × 17.5 mm, ICN-MHN-CR 0850.—Condoto, 23 Jul 1985, leg. H. von Prahl, 1 ♂, 18.1 × 28.0 mm, 1 ♀, 14.7 × 23.1 mm, CRBMUV 85132 (045-0, 045-1 ADT-CRBMUV).—Condoto, Inspección Santa Rita de Iro, Iro River, 14 Jun 1987, leg. H. Almendiger, 1 ♂, 23.6 × 40.6 mm, CRBMUV 87016.—Istmina, San Juan River, 8 Aug 1969, leg. Dale Little, 1 ♂, cl 24.4 × 40.0 mm, 2 ♀, 26.3 × 43.9 mm, 13.8 × 21.8 mm, TU 6193.—Tutunendó, km 29 Quibdó-Carmen de Atrato Highway, 170 m alt., 25 Aug 1987, leg. R. Sánchez, 1 ♂, 11.7 × 19.2 mm, 1 ♀, 11.2 × 17.9 mm, 1 juvenile, ICN-MHN-CR 0783.—Tadó, km 20.6 Santa Cecilia-Quibdó, 100 m alt., 10 Abr 1991, leg. G. Susatama, 4 ♀, 17.5 × 31.3 to 14.0 × 24.0 mm, 1 juvenile, ICN-MHN-CR 1262.—Tutunendó, La Barbuda stream, 100 m alt., 17 Oct 1987; leg. C. Román, 2 ♀, 21.9 × 37.2 mm, 20.4 × 34.5 mm, ICN-MHN-CR 1263.—Antioquia Department, Urrao, Andabú stream, 1800 m alt., 23 Sep 1994, leg. I. D. Vélez, 5 ♂, 23.5 × 40.3 to 16.5 × 21.9 mm, 6 ♀, 25.1 × 42.1 to 17.4 × 29.0 mm, ICN-MHN-CR 1386.

Diagnosis.—Anterolateral margin of carapace with deep depression behind external orbital angle, followed by another deep depression at cervical groove level. First male gonopod with caudal ridge long, straight, recurved proximally; ending in narrow ridge distally (Fig. 14A). Lateral lobe subtriangular, wide proximally, narrow distally (Fig. 14A, C). Apex outline oval in distal view, mesocephalic border transversely expanded; prominent cephalic papilla. Mesocaudal projection of spermatic channel terminating in semiacute papilla. Mesial lobe semicircular, with acute spine directed laterally (Fig. 14C, E). Third maxilliped with exognath approximately 0.20 times length of ischium (Fig. 14G).

Remarks.—Prahl's (1988) report of two males of *Hypolobocera chocoensis* from

Condoto, Chocó (045-0, 045-1 ADT-CRBMUV), actually are of *H. lloroensis*. Contrary to Prahl's report, the lot does not contain two males, but one male (18.1 × 28.0) and one female (14.7 × 23.1 mm).

Hypolobocera malaguena Prahl, 1988
Fig. 15A–G

Hypolobocera malagueña Prahl, 1988:180, fig. 10, 11.

Hypolobocera malagueña.—Rodríguez, 1992:183.—Rodríguez, 1994:300.

Material.—Colombia. Valle del Cauca Department, Málaga Bay, La Alegría stream, 23 Dec 1985, leg. N. Ospina, ♂ holotype, 24.6 × 40.7 mm, 0750 ADT-CRBMUV.

Diagnosis.—Anterolateral margin of carapace with depression fringed with approximately 8 papillae, behind external orbital angle, followed by shallow depression at level of cervical groove (Fig. 15F). First male gonopod with caudal ridge long, sinuous; almost reaching apex (Fig. 15A). Lateral lobe subtriangular with distal border rounded. Lateral lobe oblique in relation to axis of appendage (Fig. 15B). Apex outline oval in distal view, mesocephalic border transversely expanded; prominent cephalic papilla. Mesocaudal projection of spermatic channel terminating in blunt papilla. Mesial lobe semicircular, with acute spine directed laterally (Fig. 15E). Third maxilliped with exognath approximately 0.25 times length of ischium (Fig. 15G).

Remarks.—The specific name *malagueña* was given by (Prahl 1988) to this species. However, the Code does not allow the use of the “ñ” in a latinized scientific name and requires correction to *H. malaguena*. This species closely resembles *H. lloroensis* in the shape of the first male gonopod (Fig. 14A), but the lateral lobe is oblique in relation to the axis of the appendage in *H. malaguena* (Fig. 15B), while it is parallel in *H. lloroensis* (Fig. 14B).

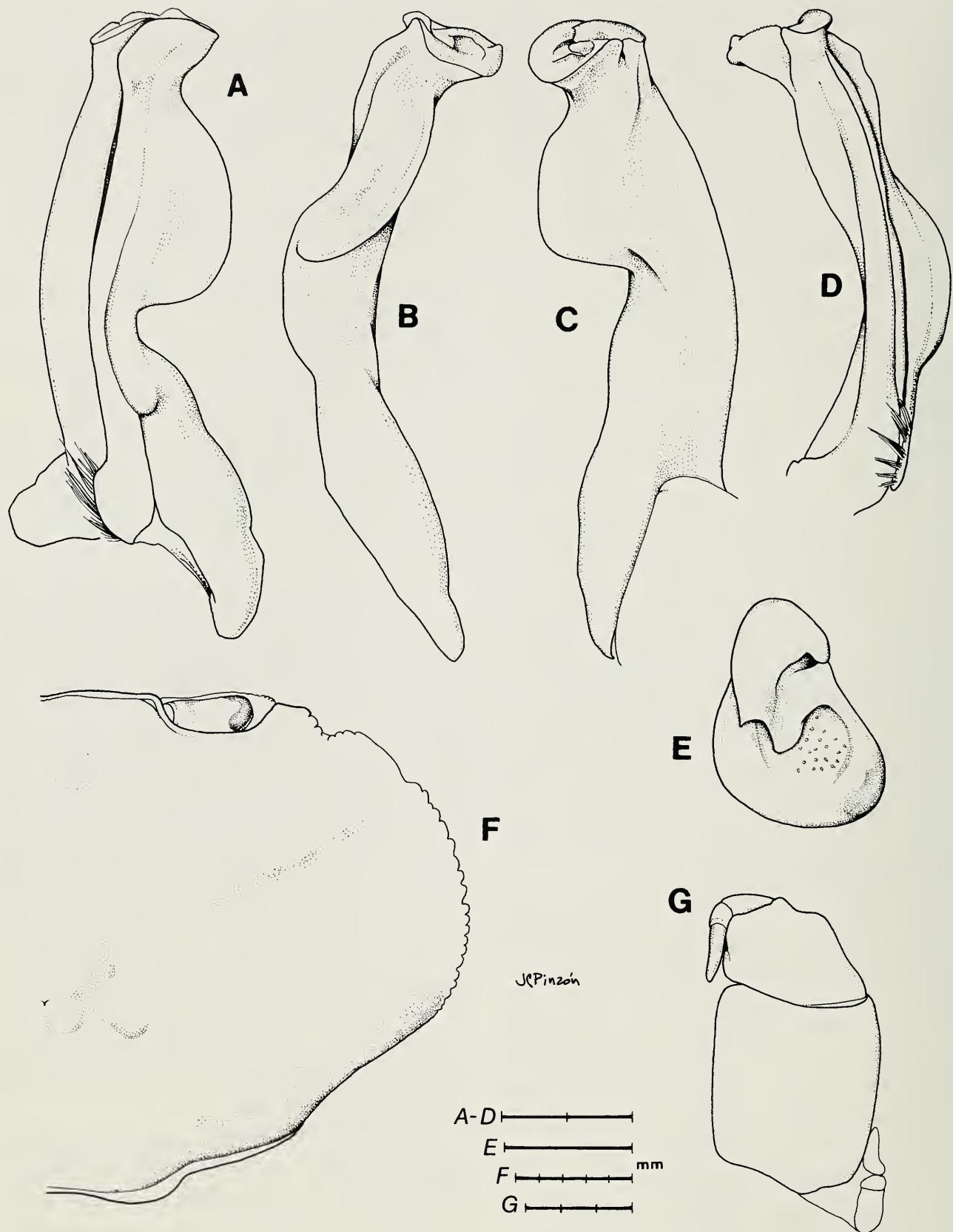


Fig. 15. *Hypolobocera malaguena* Prahl 1988, male, CRBMUV 85133: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view.

Hypolobocera martelathani
(Pretzmann, 1965)
Fig. 16A–I

Strengeria Strengeria martelathani Pretzmann, 1965:6.

Hypolobocera (Hypolobocera) martelathami.—Pretzmann, 1971:17.—Pretzmann, 1972:50, figs. 159–161, 242–244.

Hypolobocera matelathami.—Rodríguez, 1982a:52.—Campos & Rodríguez, 1984: 538, fig. 4c, f.—Rodríguez, 1994:300, fig. 1D–F.

Hypolobocera merenbergiensis Prahl & Giraldo, 1985:2, fig. 1.

Hypolobocera merenbergiensis.—Rodríguez, 1992:183.—Rodríguez et al., 2002:7.

Material examined.—Colombia, Huila Department. San Agustín, De Quintero stream, near Yalconia Hotel, 1500 m alt., 27 Aug 1986, 10 ♂, 16.2 × 27.1 to 11.6 × 13.9 mm, 12 ♀, 16.6 × 28.1 to 11.7 × 18.5 mm, ICN-MHN-CR 0653.—San José de Isnos, Vereda Primavera, 1600 m alt., 27 Aug 1986, 5 ♂, 18.8 × 32.2 to 13.2 × 20.0 mm, 10 ♀, 17.5 × 29.0 to 11.0 × 17.1 mm, ICN-MHN-CR 654.—San Agustín, Inspección Obando, 1400 m alt., 28 Aug 1986, 5 ♂, 14.1 × 23.3 to 12.3 × 19.8 mm, 6 ♀, 16.0 × 25.5 to 11.2 × 17.2 mm, ICN-MHN-CR 0655.—Acevedo, Inspección San Adolfo, Vereda Changuayaco, 1300 m alt., 29 Aug 1986, 13 ♂, 14.8 × 24.8 to 12.4 × 19.7 mm, 10 ♀, 15.8 × 27.2 to 10.7 × 17.7 mm, ICN-MHN-CR 0660.—La Plata, Merenberg stream, 2300 m alt., 9 Apr 1982, leg. H. von Prahl and J. Giraldo, M holotype, 13.1 × 20.1 mm, No. 42 (lote 006 ADT) MBMUV.—Same data, 1 ♂ paratype, No. 43 (lote 006 ADT) MBMUV.—Same data, 1 ♀ paratype, 14.2 × 22.5 mm, ICN-MHN-CR 0541.—Same data, 3 ♀, 14.0 × 23.4 to 11.5 × 18.2 mm, CRBMUV 82051.—Same data, 2 ♂, cl 12.3 × 18.8 mm, 10.5 × 16.5 mm, TU 6369.—Cauca, Inza, Vereda Tierras Blancas, 2200 m alt., 25 Mar 1982, leg. R. Restrepo, 4 ♂, 14.1 × 22.9 to 12.9 ×

20.2 mm, 3 ♀, 18.1 × 29.0 to 14.1 × 22.4 mm, ICN-MHN-CR 0087.

Diagnosis.—Chelae of male lacking tubercles on external base of mobile and fixed fingers (Fig. 16I). First male gonopod with caudal fusiform; ending in narrow ridge distally (Fig. 16A). Lateral lobe large, reaching middle of gonopod, wide distally, narrow proximally; covered with minute spinules and scattered short setae in caudal view (Fig. 16A, B, D, E); slightly semicircular in cephalic view (Fig. 16C). Apex outline oblong in distal view, with caudocephalic border slightly rounded. Mesocaudal projection of spermatic channel terminating in wide papilla. Mesial lobe elongated and subtriangular (Fig. 16D, F). Third maxilliped with exognath approximately 0.50 times length of ischium (Fig. 16H).

Remarks.—The morphology of the first male gonopods of *Hypolobocera martelathani* and *H. merenbergiensis* Prahl & Giraldo, 1985 are identical, and both species are found in the Central Cordillera, in the upper reaches of the Magdalena River. Thus, *H. merenbergiensis* is considered a junior synonym of *H. martelathani*. The original spelling of the species name is *martelathani* (Pretzmann, 1965), although Pretzmann (1971, 1972) later used the spelling *martelathami*.

Hypolobocera meineli Prahl, 1988
Fig. 17A–I

Hypolobocera meineli Prahl, 1988:173, figs. 3, 4.

Hypolobocera meineli.—Rodríguez, 1992: 183.

Material examined.—Colombia. Valle del Cauca Department, Naya River, 15 Feb 1984, leg. R. Rios, 2 ♂, 043-00 ADT-CRBMUV. Nariño Department, Ricaurte, 3 km to Pasto, Apr 1982, leg. L. Gómez, 1 ♂, 27.5 × 44.6 mm, CRBMUV 82058.—Ricaurte, 22 May 1984, leg. L. Gómez, 1 ♂ paratype, 043-1 ADT-CRBMUV. Cauca Department, Naya River, Feb 1984, leg. uk, 2 ♂, 39.8 × 63.3 mm, 38.6 × 63.1 mm,

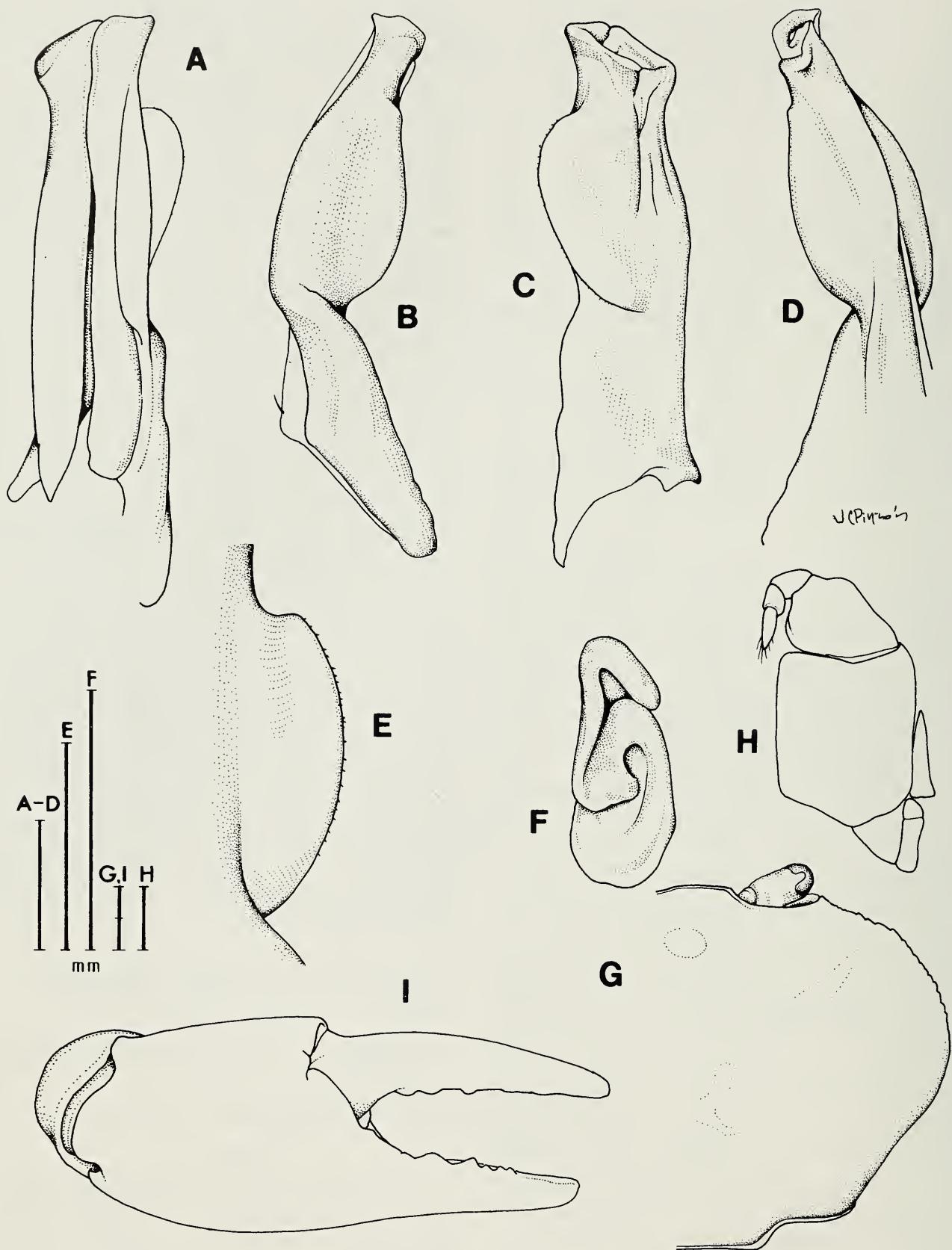


Fig. 16. *Hypolobocera martelathani* (Pretzmann, 1965), male holotype, No. Cat. 82051, CRBMUV: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, lateral lobe, caudolateral view; F, same, apex, distal view; G, right side of carapace, dorsal view; H, left third maxilliped, external view; I, right chela, external view.

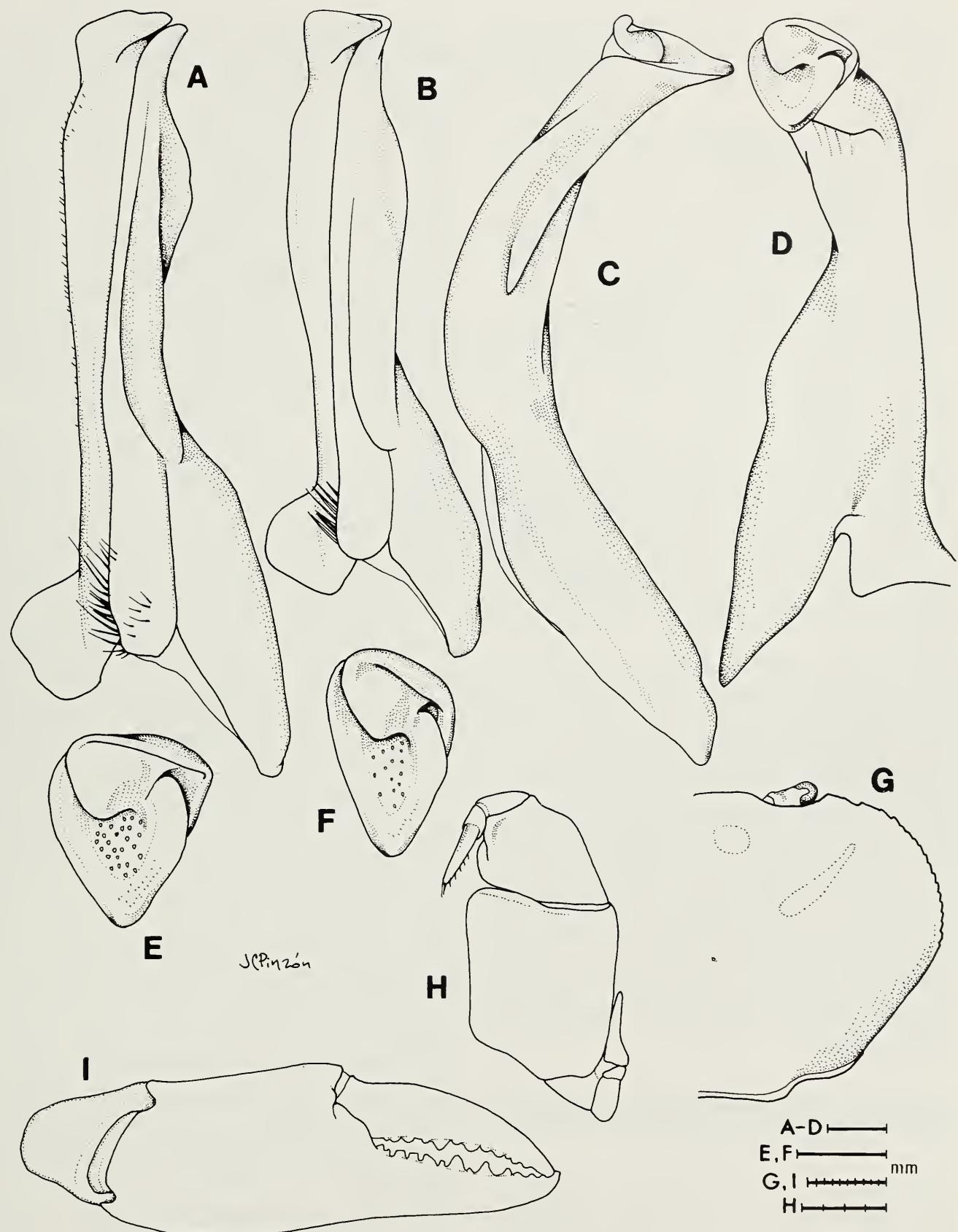


Fig. 17. *Hypolobocera meineli* Prahl 1988, male, CRBMUV 84075: A, left first gonopod, caudal view; C, same, lateral view; D, same, cephalic view; E, same, apex, distal view; G, right side of carapace, dorsal view; H, left third maxilliped, external view; I, right chela, external view. Male, ICN-MHN-CR 1866: B, left first gonopod, caudal view; F, apex, distal view.

CRBMUV 84075.—Guapi, Guapi River, El Naranjo, 50 m alt., 20 Sep 2000, leg. E. Guerra, 1 ♂, 29.8 × 46.9 mm, ICN-MHN-CR 1866.

Diagnosis.—Chelae of male lacking tubercles on external base of mobile and fixed fingers (Fig. 17I). First male gonopod with caudal ridge long, either fusiform thickened at proximal half or prominent and wide; ending in narrow ridge beyond lateral lobe. Mesial margin with or without rows of conspicuous setae (Fig. 17A, B). Lateral lobe small, slightly rounded, with or without slightly middle notch (Fig. 17A, B). Apex outline oval in distal view; expanded into a triangular projection cephalically. Mesocaudal projection of spermatic channel terminating in wide papilla. Mesial lobe reduced as strong fold along margin (Fig. 17E, F). Third maxilliped with exognath approximately 0.40 times length of ischium (Fig. 17H).

Remarks.—Prahl (1988) designated as holotype a male (043-00 ADT-CRBMUV) from Naya River, and as paratype a male (043-1 ADT-CRBMUV) from Ricaurte, without indicating their sizes. He only provided the measurements of the largest male (43.2 × 60.3 mm). In a recent examination of Prahl's material at the CRBMUV the labels with the catalogue numbers corresponding to the type material could not be found. Only two males from Naya River (CRBMUV 84075) were located, but with sizes that do not match those indicated by Prahl (1988).

***Hypolobocera murindensis*, new species**

Figs. 18A–D, 19A–F

Holotype.—Colombia, Antioquia Department, Murindó, 25 m alt., 23 Sep 1994, leg. I. D. Vélez, ♂, 11.9 × 21.4 mm, ICN-MHN-CR 1388.

Paratypes.—Same locality data as holotype: 2 ♂, 11.8 × 21.3 mm, 10.5 × 18.8 mm, 1 ♀, 9.5 × 16.5 mm, 5 juveniles, ICN-MHN-CR 1389.

Diagnosis.—Chelae of male lacking tu-

bercles on external base of mobile and fixed fingers (Fig. 18A). First male gonopod with caudal ridge long, fusiform; almost reaching apex (Fig. 19A, E). Lateral lobe prominent, subquadrate, external margin smooth (Fig. 19A, C, E). Apex outline oval in distal view; caudolateral expanded into rounded projection; cephalic border with row of spinules; prominent cephalic papilla. Mesocaudal projection of spermatic channel terminating in semiacute papilla. Mesial lobe slightly semicircular (Fig. 19C–F). Third maxilliped with exognath approximately 0.20 times length of ischium (Fig. 18C).

Description.—Carapace (Fig. 18A, B) with cervical groove straight, shallow, ending some distance from lateral margin. Anterolateral margin with shallow depression behind external orbital angle. Lateral margin with approximately 10 irregular tubercles. Postfrontal lobes small, rounded; delimited anteriorly by 2 depressions. Median groove shallow. Surface of carapace in front of postfrontal lobes regularly inclined anteriorly. Front low, upper border well demarcated with row of coalescent papillae; lower margin visible in dorsal view, sinuous in frontal view. Dorsal surface of carapace smooth, covered by small papillae, regions distinctly demarcated (Fig. 18A, B). Third maxilliped with rounded angle on distal half of external margin of merus; exognath approximately 0.20 times length of ischium (Fig. 18B, C). Orifice of efferent branchial channel irregularly ovate (Fig. 18D). First pereiopods heterochelous (Fig. 18A), right chela larger than left. Merus with 3 longitudinal crests as follows: upper crest with rows of tubercles, internal lower crest with rows of teeth, and external lower crest with row of tubercles. Carpus with 3 tubercles on internal crest, and blunt distal spine. Palms of both chelae smooth, and moderately swollen, fingers of larger chela slightly gaping when closed, finger tips crossing and surface of palms and fingers with rows of minute dark tubercles, (Fig. 18A). Walking legs (pereiopods 2–5) (Fig.

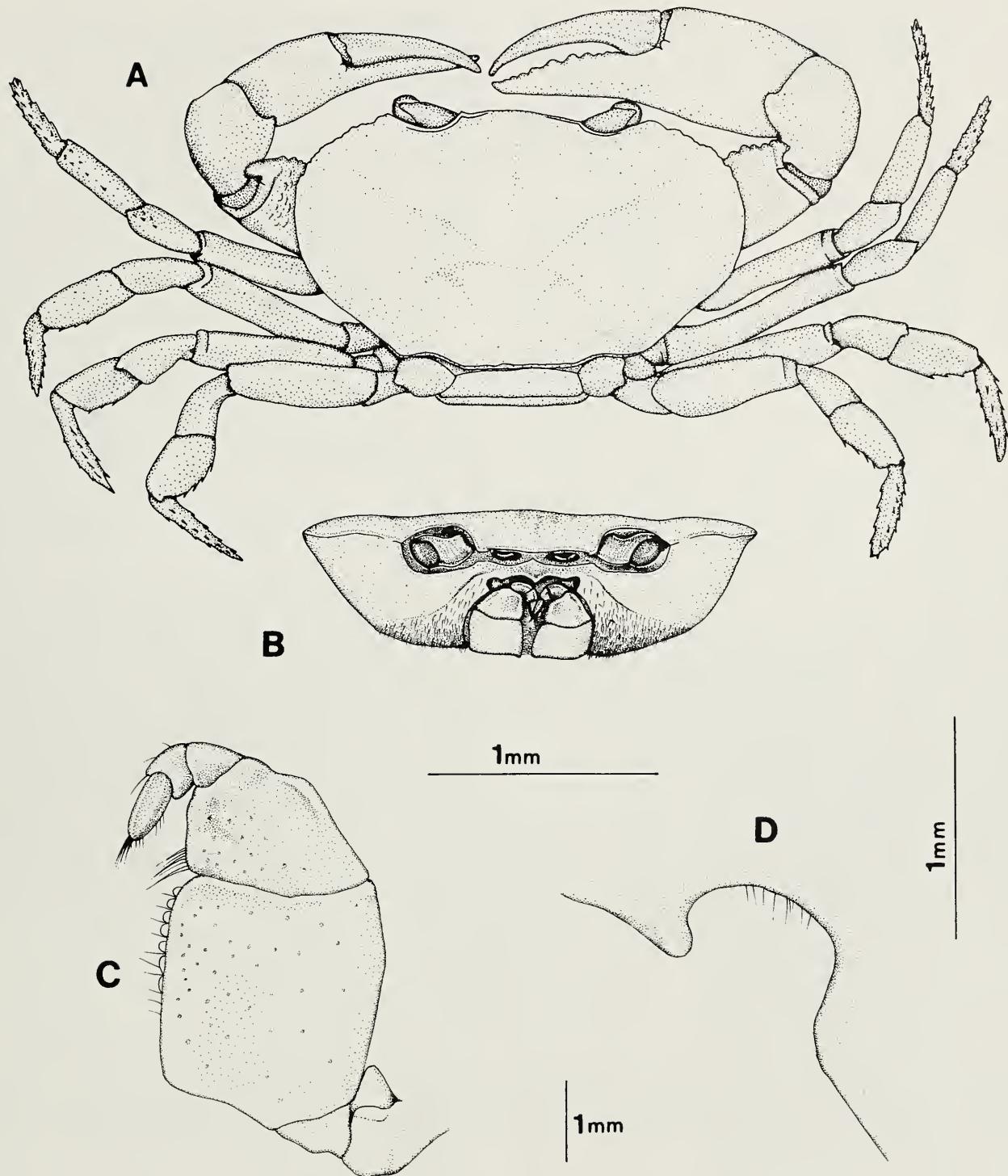


Fig. 18. *Hypolobocera murindensis*, new species, male holotype, ICN-MHN-CR 1388: A, carapace and pereiopods, dorsal view; B, carapace, frontal view; C, left third maxilliped, external view; D, opening of left efferent branchial channel, external view.

18A) with dactyli elongated, 5 longitudinal rows, and 4 to 6 spines on each row.

First male gonopod with caudal ridge long, fusiform; almost reaching apex (Fig. 19A, E). Lateral lobe prominent, subquadrate, external margin smooth (Fig. 19A, C, E). Apex outline oval in distal view, caudolateral expanded into rounded projection;

cephalic border with row of spinules; prominent cephalic papilla. Mesocaudal projection of spermatic channel terminating in semiacute papilla. Mesial lobe slightly semicircular and projected on the caudal surface (Fig. 19A, C-F).

Color.—In alcohol, dorsal surface of the carapace light brown (near 136, Raw Si-

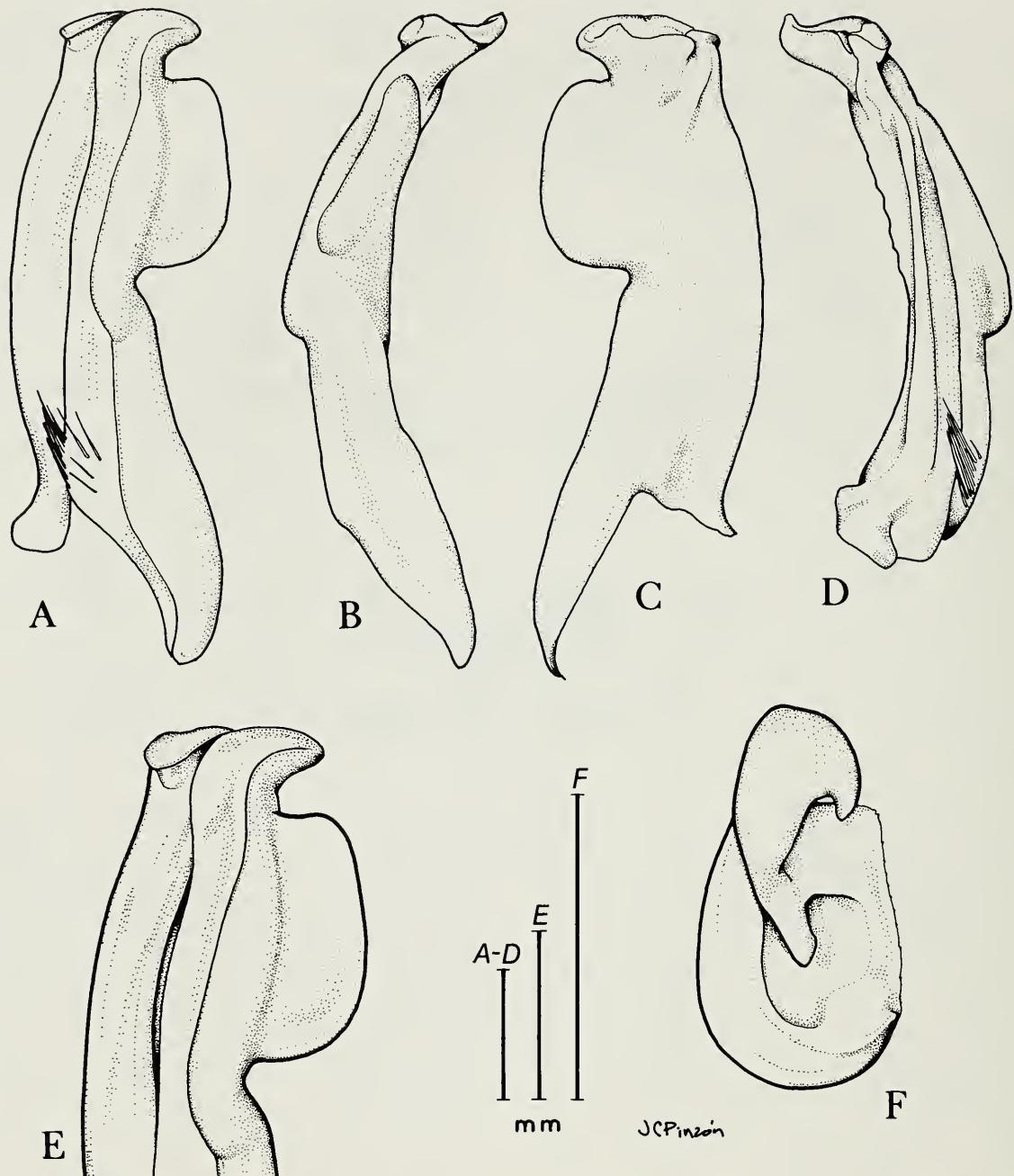


Fig. 19. *Hypolobocera murindensis*, new species, male holotype, ICN-MHN-CR 1388: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, lateral lobe, caudal view; F, same, apex, distal view.

enna) with dark brown (near Raw Umber, 223) speck on postfrontal portion of carapace. Walking legs and chelae brown (near True Cinnamon, 139) dorsally, and light brown (near Sayal Brown, 223C) ventrally. Ventral surface of the carapace brown (Verona Brown, 223B).

Etymology.—The specific name refers to Murindó, where the specimens were collected.

Remarks.—This species belongs to group

6, and is most similar to *Hypolobocera andagoensis*. The two can be distinguished by differences in the third maxilliped, and in the first male gonopod. In the new species the merus of the third maxilliped has a rounded angle, whereas in *H. andagoensis* it is sharp (Fig. 2F). The lateral lobe of the gonopod in *H. murindensis* is thick, and subquadrate, with the external margin rounded, slightly convex in lateral view, and with a narrow constriction below the

lateral lobe. In contrast, *H. andagoensis* has the lateral lobe thin, narrower distally than proximally, with a faintly crenulated external margin, and a wide constriction below the lateral lobe (Fig. 2A, B). The mesial lobe is projected as a rounded lobe on the caudal surface, slightly semicircular in distal view in *H. murindensis*, whereas, in *H. andagoensis* it is subtriangular, and not projected on the caudal surface (Fig. 2D).

Hypolobocera mutisi Prahl, 1988

Fig. 20A–G

Hypolobocera mutisi Prahl, 1988:175, figs. 5, 6.

Hypolobocera mutisi.—Rodríguez, 1992: 183.

Material examined.—Colombia, Valle del Cauca Department. Cajambre River, 500 m alt., 16 Jul 1983, leg. R. Rios, M holotype, 042-0 ADT-CRBMUV.—Same data, 1 ♂ paratype (USNM 210728).—El Piñuelal, Cajambre River, 16 Aug 1983, leg. R.R., 1 ♂, 23.3 × 38.6 mm, CRBMUV 83086.

Diagnosis.—Chelae of male with small tubercle on external base of mobile fingers, and swelling on external base of fixed fingers (Fig. 20G). First male gonopod with caudal ridge long, straight; ending in narrow ridge beyond lateral lobe (Fig. 20A). Lateral lobe outline irregular, slightly trapezoidal; projected into narrow expansion distally (Fig. 20A, C). Apex outline elongated in distal view, caudolaterally expanded into rounded projection; prominent, acute cephalic papilla. Mesocaudal projection of spermatic channel terminating in rounded papilla. Mesial lobe elongated, subtriangular (Fig. 20C, D). Third maxilliped with exognath approximately 0.30 times length of ischium (Fig. 20F).

Remarks.—An exhaustive search of the CRBMUV collections failed to produce the holotype of this species. Only the male specimen from El Piñuelal, Cajambre River (CRBMUV 83086) was found, and is illustrated herein.

Hypolobocera noanamensis Rodríguez, Campos & López, 2002
Fig. 21A–H

Hypolobocera noanamensis Rodríguez, Campos & López, 2002:4–6, fig. 1A–H.

Material examined.—Colombia, Chocó Department, Noanamá, San Juan River, 50 m alt., 4°42'N, 26°56'W, 8 Aug 1969, leg. Dale Little, ♂ holotype, 50.9 × 80.3 mm, TU 6191.—Same data, 1 ♀ paratype, 53.9 × 80.3 mm, TU 5337.

Diagnosis.—Chelae of male without tubercle on external base of mobile fingers, with a swelling on external base of fixed fingers (Fig. 21H). First male gonopod with caudal ridge strong, fusiform; ending in narrow ridge beyond lateral lobe (Fig. 21A). Lateral lobe small, subtriangular, distal angle rounded, placed transversely in relation to axis of appendage; cephalic surface with tuberculated crest (Fig. 21A–C). Apex outline oval in distal view, mesocephalic border rounded expanded; flat papilla on caudolateral border. Mesocaudal projection of spermatic channel terminating in rounded papilla with spiny ridge on cephalic side. Mesial lobe subtriangular (Fig. 21E). Third maxilliped with exognath 0.30 times length of ischium (Fig. 21G).

Remarks.—This species closely resembles *Hypolobocera beieri* in the shape of the lateral lobe, and the outline of the apex of the first male gonopod. The species can be differentiated from each other by the spiny ridge on the cephalic side of the mesocaudal projection in *H. noanamensis*, which is lacking in *H. beieri*.

Hypolobocera rotundilobata
Rodríguez, 1994
Fig. 22A–H

Hypolobocera bouvieri rotundilobata Rodríguez, 1994:297, fig. 2.

Hypolobocera bouvieri rotundilobata.—Rodríguez et al., 2002:6.

Material examined.—Colombia. Chocó Department, Mountains of upper San Juan

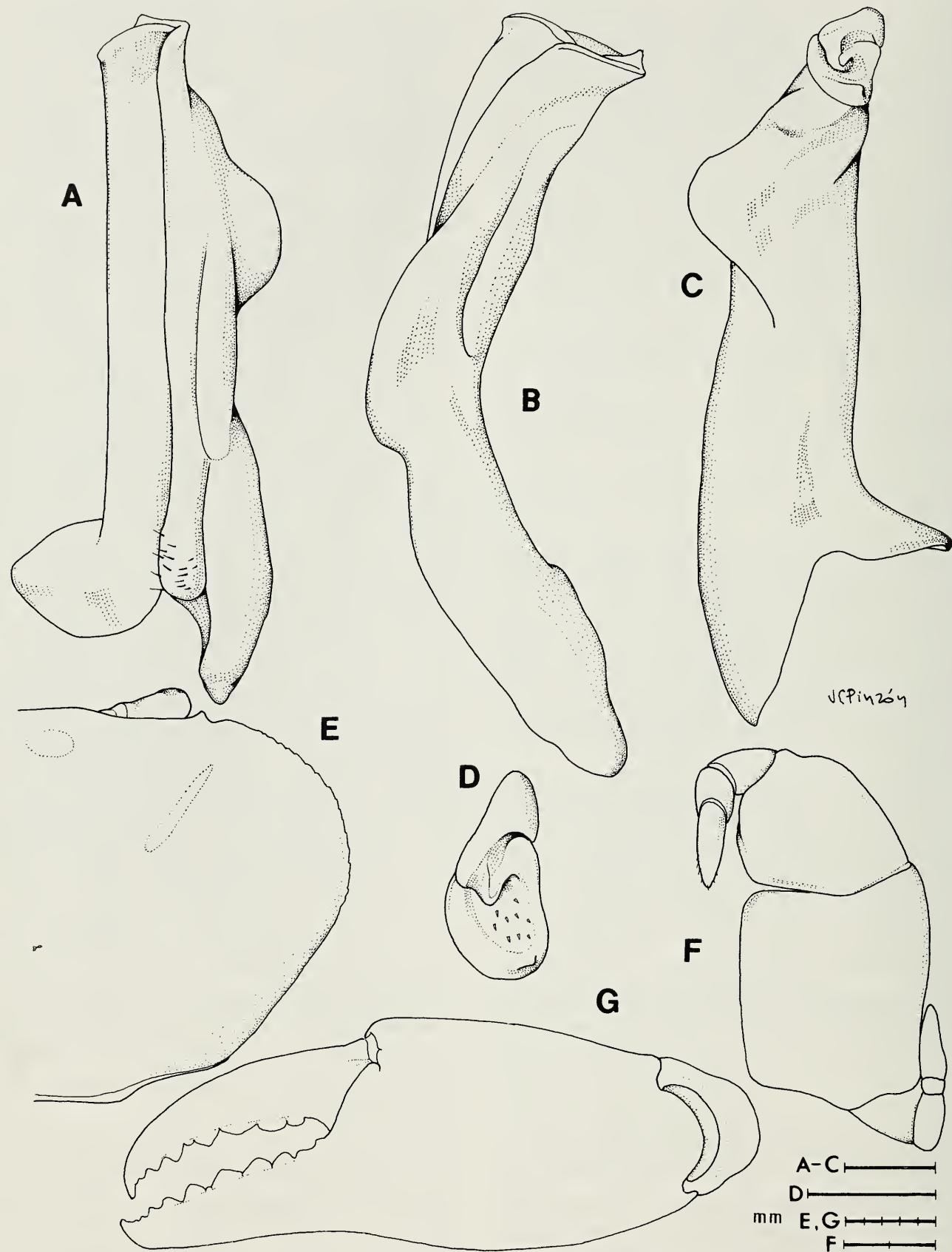


Fig. 20. *Hypolobocera mutisi* Prahl 1988, male, CRBMUV 83086: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, apex, distal view; E, right side of carapace, dorsal view; F, left third maxilliped, external view; G, left chela, external view.

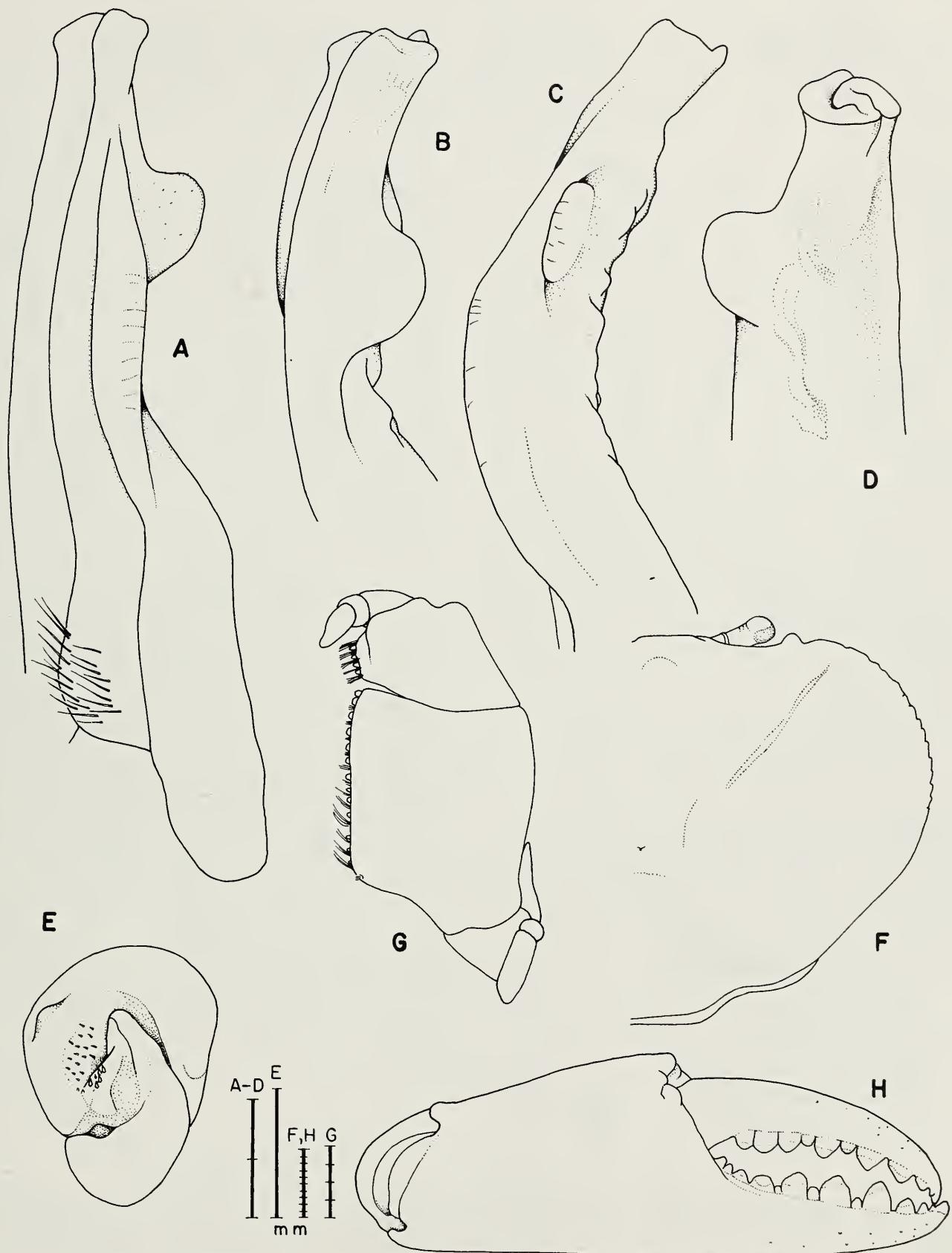


Fig. 21. *Hypolobocera noanamensis* Rodríguez, Campos & López, 2002, male holotype, TU 6191: A, left first gonopod, caudal view; B, same, lateral view; C, same, laterocephalic view; D, same, cephalic view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view.

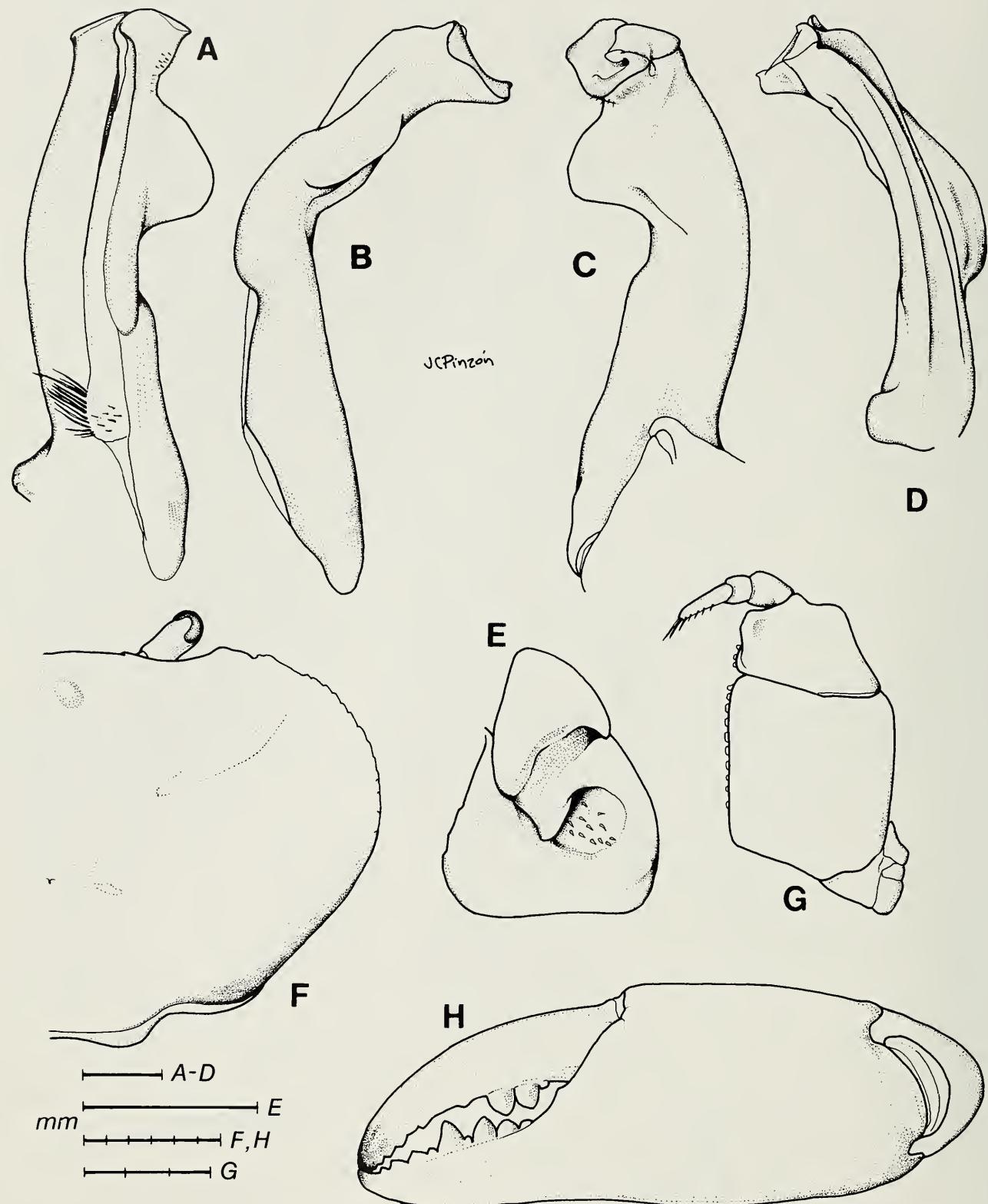


Fig. 22. *Hypolobocera rotundilobata* Rodríguez, 1994, male holotype, USNM 240104: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, left chela, external view.

River, nearest village Playa de Oro, 28 Mar 1962, leg. M. Latham, ♂ holotype, 46.2 × 68.4 mm, USNM 240103.—Same data, 5 ♂ paratypes, 15.4 × 26.3 to 12.1 × 22.6 mm, 1 ♀, 18.0 × 31.6 mm, USNM

240104.—Borderline between Chocó and Valle del Cauca Departments, Paso de Galápagos, 15 May 1985, leg. M. Alberico, 2 ♂, 13.3 × 23.3 mm, 12.4 × 21.1 mm, 6 ♀, 13.1 × 22.6 to 10.2 × 17.2 mm, CRBMUV

85147.—Chocó Department, San José del Palmar, Ingá River, 2000 m alt., 22 Oct 2000, leg. E. Guerra, 1 ♂, 13.1 × 22.8 mm, 1 ♀, 13.3 × 22.9 mm, ICN-MHN-CR 1867, 1868.

Diagnosis.—Chelae of male lacking tubercles on external base of mobile and fixed fingers (Fig. 22H). First male gonopod with caudal ridge long, straight; ending in narrow ridge distally (Fig. 22A). Lateral lobe slightly semicircular (Fig. 22A, C). Apex outline subtriangular in distal view; lateral border straight; rounded cephalic papilla. Mesocaudal projection of spermatic channel terminating in semiacute papilla. Mesial lobe subtriangular and projected mesially (Fig. 22A, C, E). Third maxilliped with exognath 0.30–0.40 times length of ischium (Fig. 22G).

Remarks.—Rodríguez (1994) described this taxon as *Hypolobocera bouvieri rotundilobata*. The subspecies of *H. bouvieri* are characterized by the male chelae, featuring a small, rounded or irregularly shaped tubercle on the external base on each of the mobile fingers, and a swelling or prominent tubercle on external base on each of the fixed fingers. The apex outline of the first male gonopod is oval, with prominent cephalic papilla, and an auxiliary rounded papilla near the spermatic channel. However, in *H. rotundilobata* the male chelae lack tubercles on the external base of the mobile and fixed fingers. The apex outline is subtriangular, and without an auxiliary papilla. In view of this, *H. b. rotundilobata* is elevated to specific rank.

Hypolobocera steindachneri
Pretzmann, 1968

Hypolobocera (Hypolobocera) monticola steindachneri Pretzmann, 1968:9.—Pretzmann, 1971:17.—Pretzmann, 1972: 46, figs. 204, 205, 227–229.

Hypolobocera steindachneri.—Rodríguez, 1982a:58.

Material examined.—Colombia, Valle del Cauca Department. 1897, leg. Stein-

dachneri, ♂ holotype, cl 27.7 mm, 1 ♂ paratype, cl 20.6 mm (Museum Wien Nr. 3779).—Bitaco, 1957, leg. M. Latham, 2 ♂, cl 18.0, 15.3 mm, 2 ♀, cl 21.0, 15.6 mm, USNM.

Remarks.—I have been unable to examine any material of this species. Pretzmann (1968:9) in his original description of *Hypolobocera (Hypolobocera) monticola steindachneri* described as features “the first male gonopod is slender; the lateral lobe is smaller, the external margin is folded back strongly, and it is placed far from apex. The exognath of third maxilliped is 0.12 the length of ischium”. Pretzmann (1972) described again, including illustrations, the morphological features of *H. (H.) m. steindachneri*, partially contradicting his previous description (Pretzmann, 1968). He stated that “the lateral lobe is placed not far from apex” and that “the exognath of third maxilliped is shorter, only 0.17 the length of ischium”.

Hypolobocera velezi, new species
Fig. 23A–H

Holotype.—Colombia. Chocó Department, Carmen de Atrato, Vereda El Veinte, 2400 m alt., 25 May 1994, leg. I. D. Vélez, 1 ♂, 16.1 × 29.2 mm, ICN-MHN-CR 1387.

Paratypes.—Same locality data as holotype: 1 ♀, 16.6 × 28.2 mm, 1 ovigerous ♀, 15.3 × 27.4 mm, ICN-MHN-CR 1889.

Non-paratypes.—Colombia. Risaralda Department, Pueblo Rico, Corregimiento Santa Cecilia, Vereda La Granja, 600 m alt., 23 Oct 1991, 1 ♂, 15.5 × 25.4 mm, 1 ♀, 16.5 × 27.1 mm, ICN-MHN-CR 1307.—Chocó Department, Carmen de Atrato, km 53 Carmen de Atrato-Quibdó Highway, 420 m alt., 27 Aug 1987, leg. R. Sánchez, 2 ♀, 13.0 × 21.3 mm, 11.9 × 19.6 mm, ICN-MHN-CR 0784.

Diagnosis.—Chelae of male lacking tubercles on external base of mobile and fixed fingers (Fig. 23H). First male gonopod with caudal ridge strong, straight, narrow distally; ending some distance from apex (Fig.

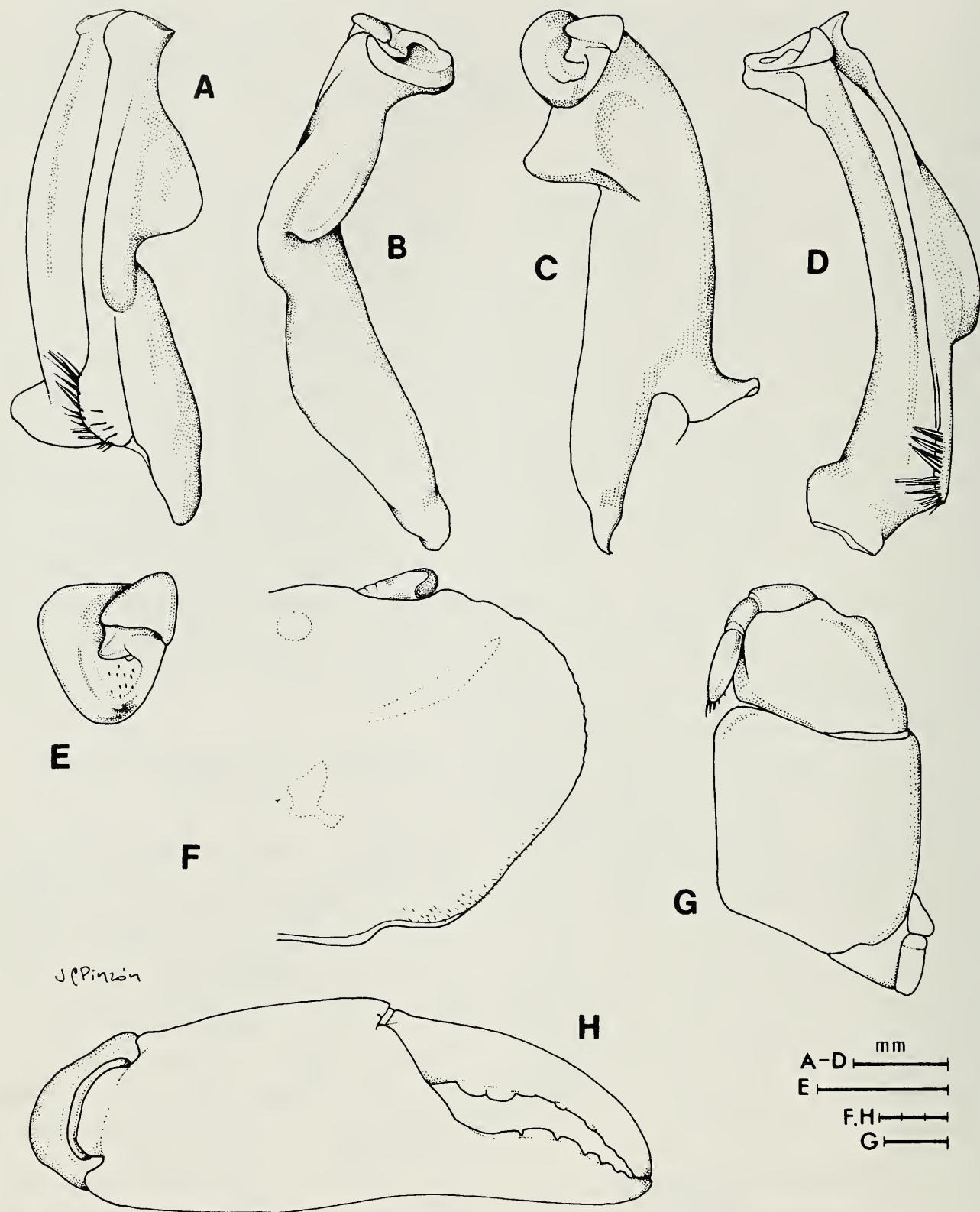


Fig. 23. *Hypolobocera velezi*, new species, male holotype, ICN-MHN-CR 1387: A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right side of carapace, dorsal view; G, left third maxilliped, external view; H, right chela, external view.

23A). Lateral lobe subtriangular; proximal external margin angled and curved upward (Fig. 23A, C). Apex outline slightly rounded in distal view, mesocaudally expanded

into rounded projection; rounded papilla near cephalic border. Mesocaudal projection of spermatic channel terminating in semiacute papilla. Mesial lobe subtriangular

(Fig. 23C, E). Third maxilliped with exognath approximately 0.20 times length of ischium (Fig. 23G).

Description.—Carapace (Fig. 23F) with cervical groove deep, straight, recurved posteriorly, ending some distance from lateral margin. Anterolateral margin with shallow depression behind external orbital angle, anterolateral border not continuous with margin of depression, but running dorsally to it, forming rounded lobe. Lateral margin with approximately 12 blunt teeth. Postfrontal lobes oval, low; delimited anteriorly by 2 transverse depressions. Median groove wide, shallow. Surface of carapace in front of postfrontal lobes regularly inclined anteriorly. Front lacking distinct upper border, regularly curving downward; slightly bilobed in dorsal view; lower margin slightly sinuous in frontal view. Dorsal surface of carapace smooth, covered by small papillae, regions distinctly demarcated (Fig. 23F). Third maxilliped with sharp angle on distal half of external margin of merus; exognath approximately 0.20 times length of ischium (Fig. 23G). Orifice of efferent branchial channel slightly ovate. First pereiopods heterochelous, right chela larger than left. Merus with 3 longitudinal crests as follows: upper crest with rows of tubercles, internal lower crest with rows of teeth, and external lower crest with row of tubercles. Carpus with 3 tubercles on internal crest, and blunt spine distally. Palm of male chelae swollen, fingers gaping when closed. Walking legs (pereiopods 2–5) with 5 longitudinal rows, and 4 to 6 spines on each row.

First male gonopod with caudal ridge strong, straight, narrow distally; ending at some distance from apex (Fig. 23A). Lateral lobe subtriangular; proximal external margin angled and curved upward (Fig. 23A, C). Apex outline slightly rounded in distal view, mesocaudally expanded into rounded projection; rounded papilla near cephalic border. Mesocaudal projection of spermatic channel terminated in semiacute

papilla. Mesial lobe subtriangular (Fig. 23C, E).

Color.—In alcohol, dorsal surface of the carapace brown (near 37, Antique Brown) with light brown (near Cinnamon, 39) speck on posterior portion of carapace. Walking legs and chelae brown (near 37, Antique Brown) dorsally, and light brown (near Sayal Brown, 223C) ventrally. Ventral surface of the carapace light brown (near Cinnamon, 39).

Etymology.—The species is named in honor of Colombian scientist Dr. Ivan Darío Vélez, professor of the Universidad de Antioquia, who promotes research in Paragonimosis and other tropical diseases, and who collected the specimens.

Remarks.—This species belongs to group 4, and is most similar to *Hypolobocera llorensis*. The two can be differentiated by feature of the first male gonopod. The proximal external margin of the lateral lobe in *H. velezi* is angled, and curved upward (Fig. 23A, C), whereas that margin is rounded, and not caudally curved in *H. llorensis* (Fig. 14A).

Key to Species and Subspecies of *Hypolobocera* from Colombia

1. Outline of apex of gonopod in distal view oval, rounded or subtriangular 2
- Outline of apex of gonopod in distal view elongated 16
2. Lateral lobe rounded or subtriangular 9
- Lateral lobe regularly rounded 3
3. Lateral lobe with strong triangular process *H. alata*
- Lateral lobe without strong triangular process 4
4. Latero-cephalic border of apex toothed *H. dentata*
- Latero-cephalic border of apex not toothed 5
5. Lateral lobe displaced towards cephalic side (Fig. 13B–D) *H. kamsarum*
- Lateral lobe not displaced towards cephalic side 6
6. Mesial lobe well developed, subtriangular or semicircular 7

— Mesial lobe reduced as strong fold along margin	<i>H. meineli</i>	channel without distal spinule	
7. Lateral border of apex straight in distal view (Fig. 22E)	<i>H. rotundilobata</i> <i>H. bouvieri angulata</i>	
— Lateral border of apex rounded in distal view (Figs. 3E, 4E, 6E)	8	21. Chelae of male with prominent tubercle on external base of fixed fingers	
8. With auxiliary papilla near spermatic channel	19 <i>H. bouvieri bouvieri</i>	
— Without auxiliary papilla near spermatic channel	9	— Chelae of male without prominent tubercle on external base of fixed fingers	
9. Mesocaudal projection with spiny ridge on cephalic side	<i>H. noanamensis</i> <i>H. bouvieri stenolobata</i>	
— Mesocaudal projection without spiny ridge on cephalic side	<i>H. beieri</i>		
10. Lateral lobe rounded or subtriangular	11		
— Lateral lobe subquadrate	13		
11. Proximo-external margin of lateral lobe rounded	12		
— Proximo-external margin of lateral lobe angled and curved upwards	<i>H. velezi</i>		
12. An auxiliary lobe parallel to lateral lobe on lateral side	<i>H. cajambrensis</i>		
— No auxiliary lobe on lateral side	13		
13. External margin of lateral lobe faintly crenulated	<i>H. andagoensis</i>		
— External margin of lateral lobe not crenulated	<i>H. murindensis</i>		
14. Distal border of lateral lobe rounded (Fig. 15A, C)	<i>H. malaguena</i>		
— Distal border of lateral lobe not rounded (Fig. 9A, E)	15		
15. Mesocephalic border of apex transverse expanded (Fig. 14E)	<i>H. lloroensis</i>		
— Mesocephalic border of apex not transverse expanded (Fig. 9F)	<i>H. chocoensis</i>		
16. Distal end of lateral lobe with a deep notch	<i>H. emberarum</i>		
— Distal end of lateral lobe lacking notch	17		
17. Outline of lateral lobe irregular	<i>H. mutisi</i>		
— Outline of lateral lobe regularly recurved	18		
18. Apex in distal view with bifid papilla near spermatic channel	<i>H. gorgonensis</i>		
— Apex in distal view with slightly rounded papilla near spermatic channel			
—	<i>H. martelathani</i>		
19. Lateral lobe subtriangular	20		
— Lateral lobe semicircular	21		
20. Mesocaudal projection of spermatic channel with distal spinule			
—	<i>H. bouvieri monticola</i>		
— Mesocaudal projection of spermatic			

Summary of Distributions

This review of the genus *Hypolobocera* from Colombia has made possible the study of the geographic distribution of this genus. However, some species are known from single or few localities, and additional sampling is needed.

The distribution of *Hypolobocera* species comprises a vast portion of the Colombian territory (Fig. 24), and includes most of Colombia's major basins: the Magdalena, Cauca, and Atrato Rivers basins, which drain to the Caribbean; the San Juan, Anchicayá, Dagua, Cajambre, Naya, and Guapi Rivers basins, which drain to the Pacific; and the Caquetá River basin, which drains to the Amazon River.

Seven species and two subspecies have trans-basin distribution: *Hypolobocera buenaventurensis*, *H. cajambrensis*, *H. chocoensis*, *H. lloroensis*, *H. meineli*, *H. velezi*, *H. beieri*, *H. bouvieri angulata*, and *H. b. monticola*. The distribution of the latter subspecies is particularly interesting, because it encompasses rivers that flow into the Atlantic and the Pacific Oceans.

Hypolobocera bouvieri bouvieri, *H. b. stenolobata*, and *H. martelathani* are found exclusively in the Magdalena River basin, while *H. alata*, *H. andagoensis*, and *H. rotundilobata* have only been found in the San Juan River basin; *H. emberarum* occurs only in the Atrato River basin.

Hypolobocera bouvieri bouvieri has an extensive distribution on the slopes of the Central and Eastern Cordilleras, in systems that drain to the Magdalena River. Another subspecies with a broad trans-basin distribution is *H. b. monticola*. The known distribution of this subspecies includes the

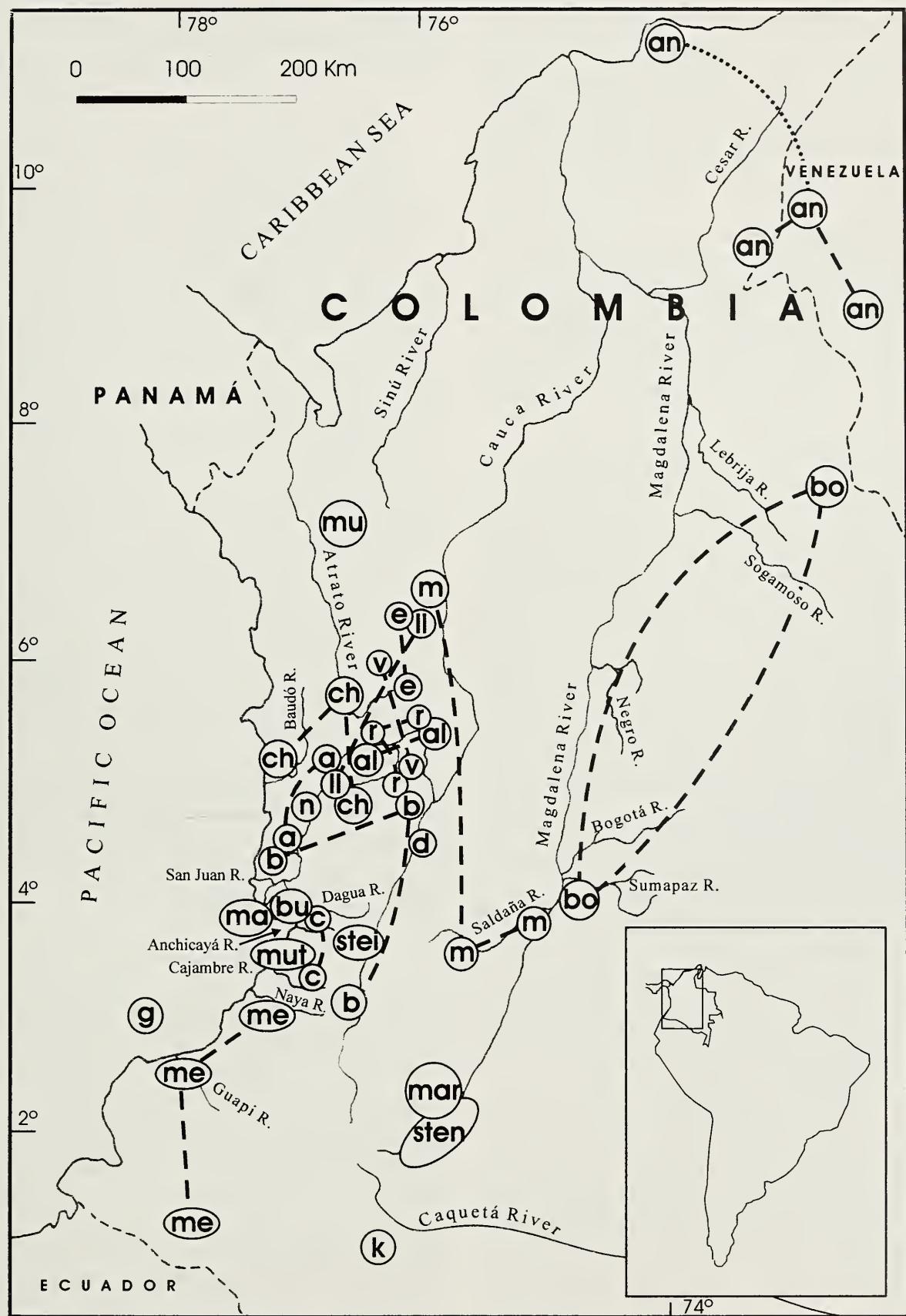


Fig. 24. Geographical distribution of *Hypolobocera* in Colombia. a, *H. andagoensis*; al, *H. alata*; b, *H. beieri*; an, *H. bouvieri angulata*; bo, *H. bouvieri bouvieri*; m, *H. bouvieri monticola*; sten, *H. bouvieri stenolobata*; bu, *H. buenaventurensis*; c, *H. cajambrensis*; ch, *H. chocoensis*; d, *H. dentata*; e, *H. emberarum*; g, *H. gorgonensis*; k, *H. kansarum*; ll, *H. lloroensis*; ma, *H. malaguena*; mar, *H. martelathani*; me, *H. meineli*; mu, *H. murindensis*; mut, *H. mutisi*; n, *H. noanamensis*; r, *H. rotundilobata*; stei, *H. steindachneri*; v, *H. velezi*. The bold, dashed lines indicate continuous distribution ranges, and the dotted line a disjunct distribution.

Central and Western Cordilleras in the middle course of the Magdalena and Cauca River basins. This subspecies has a great potential to colonize new habitats due, in part, to the ability of females to hatch large number of eggs. The distribution of *H. b. angulata* includes the Sierra Nevada de Santa Marta to both slopes of the Sierra de Perijá, and also the Cordillera de Mérida in Venezuela. This disjunct distribution, covering the Cesar and Catatumbo River basins, is considered a relict distribution modified by temperature changes (G. Rodríguez, pers. comm.).

Hypolobocera lloroensis and *H. choocoensis* are known from the headwaters of the Atrato River, which flows northwards into the Gulf of Urabá to the Caribbean Sea. In addition, records are here included from the basin of the San Juan River which drains into the Pacific Sea, for *H. choocoensis* (upper San Juan River, Chocó, USNM 240102; Condoto, 045-0, 045-1 ADT-CRBMUV); and *H. lloroensis* (Condoto, CRBMUV 85132; CRBMUV 87016; Istmina, TU 6193; Tadó, ICN-MHN-CR 1262). This trans-basin distribution can be attributed to the intermittent communication between both basins which can occur during flooding seasons in areas below 100 m of altitude.

Hypolobocera dentata, *H. kamsarum*, *H. malaguena*, *H. mutisi*, *H. murindensis*, and *H. noanamensis* are species known from single localities.

The vertical distribution of the species (Table 1) ranges from 20 to 2500 m. *Hypolobocera lloroensis* extends from 50 to 2400 m along the San Juan River and headwater of the Atrato River. *Hypolobocera andagoensis*, *H. buenaventurensis*, *H. cajambrensis*, *H. choocoensis*, *H. gorgonensis*, *H. malaguena*, *H. meineli*, *H. murindensis*, *H. mutisi*, and *H. noanamensis*, have been found along the coastal plain of the Pacific, between 20 and 700 m. The other species from the Pacific drainage are *H. beieri*, between 500 and 1600 m; *H. rotundilobata*, between 70 and 2000 m. The inland spe-

Table 1.—Altitudes (in meters above sea level) reported for Colombian *Hypolobocera*.

<i>Hypolobocera alata</i>	490–700
<i>H. andagoensis</i>	20–50
<i>H. beieri</i>	500–1600
<i>H. bouvieri angulata</i>	400–1300
<i>H. bouvieri bouvieri</i>	270–2050
<i>H. bouvieri monticola</i>	300–1850
<i>H. bouvieri stenolobata</i>	1175–1200
<i>H. buenaventurensis</i>	20–200
<i>H. cajambrensis</i>	50–700
<i>H. choocoensis</i>	20–500
<i>H. dentata</i>	1600
<i>H. emberarum</i>	1800–2500
<i>H. gorgonensis</i>	20–300
<i>H. kamsarum</i>	1350
<i>H. lloroensis</i>	50–2400
<i>H. malaguena</i>	0–50
<i>H. martelathani</i>	1300–2300
<i>H. meineli</i>	50–100
<i>H. murindensis</i>	25
<i>H. mutisi</i>	500
<i>H. noanamensis</i>	50
<i>H. rotundilobata</i>	70–2000
<i>H. steindachneri</i>	1500
<i>H. velezi</i>	420–2400

cies, which range between 270 and 2500 m are: *H. dentata*, *H. emberarum*, *H. martelathani*, *H. steindachneri*, *H. velezi*, and the subspecies *H. b. bouvieri*, *H. b. monticola*, and *H. b. stenolobata*.

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